BEYOND INNOVATION: THE URGENCY OF TECHNOLOGICAL ACCOUNTABILITY IN PINSKER'S *WE ARE SATELLITES*

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Abstract

This research paper explores how technology silently mediates human identity in the contemporary era, and how hidden technological artifacts prevail marginalization, inequality, unequal opportunity, exploitation, economic disparity, systemic injustice, discrimination, and unequal access. This paper exclusively demands the urgent need to rethink about the responsibility and accountability. This study focuses on who is truly responsible and accountable in this tech-era. The deployment and development of technology is on its peak point which is why it is demand of time to address the genuine issues caused by technological intervention in our lives along with reaping its fruits. This research paper fills the research gap by addressing not only the implications and ramifications of technological advancement but also exploring who is truly responsible and accountable and appealing to the policy makers, technologists, scholars, governments, and other authoritative entities to be insightful in designing and operating technological tools, devices, apparatuses, gadgets, machines etc. This is a qualitative research and researchers analyze sci-fiction novel *We Are Satellite* written by Sara Pinsker through Verbeek's framework mediation theory. This analysis advocates collaborative approach to ensure that technology should serve human beings for their favors rather prevailing imbalances, inequity, unevenness, disparity, discrepancy and marginalization in a society.

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1. Introduction

This paper discusses the core essence of technology, exposes the rancorous behaviors of Invincible entities and how it can be employed for the development of human beings in contemporary age through the exploration of literary text *We Are Satellite* (2021). Authors employ key theorist Peter-Paul Verbeek's framework Technology mediation focusing on his work *Moralizing Technology: Understanding and Designing the Morality of Things* (2011) to the literary exploration that analyzes literary work exactly. This article explores how powerful entities are using technological apparatuses for their personal interest ignoring inclusive approach.

Sarah Pinsker is an American author of the sci-fiction novel *We Are Satellite* (2021) who assuredly represents the role of technological devices in present and near future. Moreover, she demonstrates the human-machine integration's impact on society through so called ideologies exerted by corporations, politicians, and other powerful and privileged entities. She neither advocates the advancement of technology nor oppose it rather she is concerned about its responsible use for the auspicious future of mankind and addresses loopholes in systematic algorithms. She introduced a cognition enhancer device, name's pilot that prevails discrimination, exploitation, inequality, biasness, oppression, loneliness, disruption and many other ill-natured factors in society based on the classification of technology.

Before delving down in further discussion, we need to understand the term technology that is basically derived from Greek words *techne* (τέχνη). The word *techne* (τέχνη) denotes the meaning of art, skill or craft and logos (λόγος) carries the meaning of systematical study or discourse (Oxford English Dictionary, 2023; Liddell & Scott, 1996). In this way, technology is not limited to physical objects, devices, tools, equipment, machines or other materialistic items rather it has both features; tangibles and intangibles. It creates a holistic system incorporating organizations and procedures that administrate how tools, devices and machines are created, perform action and serve the humanity. As Franklin (1990) states the same thing in *The Real World of Technology* that "Technology is a system. It entails far more than its individual material components. Technology involves organization, procedures, symbols, new words, equations, and, most of all, a mindset" (pp. 12).

In this modern era, human beings are not autonomous rather technology has been actively involved in shaping human identity, behavior, culture, role and participating in the establishment of ecosystem. Verbeek (2011) argues that human and technology are closely connected with each other and they are inseparable. It would be wrong to consider that ethics exclusively belongs to humans and technology merely is limited to tools, machines and other artefacts. In his viewpoint, technology influences human's choices, actions and other domains of life. He introduced the theory of technology mediation to justify how human beings identities and autonomy have been compromised.

Technology has significantly influenced humans' lifestyles and impacted on human rights in various ways even it has become a tool of exerting control over common or unprivileged entities through malicious ideologies of corporations, companies, governments, dictators and other powerful entities. These powerful authorities are employing the various tools of technology for their personal gains. While technology was introduced for the bright future of mankind holistically neither for the sake of exerting control nor for the personal gains. While the technology has been assumed another form of personal interest embodiment and transformed its functionality. Land and Aronson (2020) explore the emerging challenges of technology for justice and accountability. Technology has inevitable impacts on human rights. For instance, on one hand government agencies use technology to enhance the efficiency of their services' deliveries, on the other hand they in fact establish the basis for further entrenching and exacerbating the economic inequality. The employment of technological artefacts in various contexts does more than just jeopardizes rights. More fundamentally, it raises concerns about accountability. The employment of new technology obscures and attenuates culpability for these human rights violations in ways that undercut existing methods for holding those responsible accountable for their actions.

The rapid evolution of technology demands for accountability and responsibility when technological artefacts have been involved in our decision making and characters shaping process, exclusively transforming social, economic and political life. Coeckelbergh (2020) explores that human values and principles are embedded in technological systems and therefore technologists, policymakers and other privileged entities must be responsible for their actions of designing, regulating, and profit making from tech-devices. Likewise Stahl (2013) reveals that accountability has been mandatory now because irresponsible technological advancement is posing unforeseen threats and harms for humans that underscore democratic governance and public trust. The same concern is clearly dramatized in the novel *We Are Satellite* (2021) where authors embody the irresponsible use of technology and its subsequent risks imposed on public overriding ethical concerns. As Macnish (2018) denotes that the practice of unaccountability and failure of responsibility erode ethical foundations enabling abuses of powers. Thus,

accountability has become an urgent necessity in technological innovation so that technological progress may genuinely serve human well-beings.

This study aims to expose to the unfair use of technology by policymakers, technology developers, corporations, and states, appeal to them how to exercise their authorities and rights for responsible use of technology and they must remain accountable for their own actions to design and disseminate technology. Pinsker in her novel, *We Are Satellite* highlights the dangers behind irresponsible use of technology through companies' malicious actions of prioritizing adoption of brain implant for their profits over social welfare. Corporations ignore long-term social effects and prevail inequality, injustice, marginalization, exclusion, and psychological harm.

Consequently, the principal research inquiries directing this study are: In what manner could influential organizations guarantee that technology is conceived and implemented with ethical responsibility in consideration? What are some ways that *We Are Satellites* shows how dangerous it is to ignore technology's moral agency? And how may Verbeek's idea of technological mediation help us think of new ways to be responsible when we innovate?

2.Literature Review

The rapid proliferation of technological advancement requires accountability and attention to think about its transforming existence. Stahl (2021) states that fast paced growth of digital technologies has escalated the discussion about ethics, accountability, power of politics and algorithmic design. In this contemporary era, it has become increasingly complex to know who mainly responsible and what bears responsibilities is. Floridi and Latour (2013, 2005) explore that traditionally, scholars have anthropocentric approach and framed accountability within it. Winner and Johnson (1986, 2006) state that early study located ethical responsibilities exclusively in human agents, policymakers, engineers, governments and designers to shape the ethical repercussions in technology overriding all other non-human entities. Pasquale and Mittelstadt et al. (2015, 2016) add that with the rapid development of digital technologies the concerned has switched to the responsibilities of corporations for many risks such data exploitation, algorithmic prejudice and privacy violation. Ananny, Crawford, Rieder and Hofmann (2018, 2020) note that recent studies prove that responsibility must be regarded as a systematic phenomena beyond the limitation of individuality.

Burrell (2016) explores that researches on algorithm-based decision-making demonstrate that when machine learning systems work in complex ways it is hardly possible to decide who is responsible. Similarly, Matthias, Santoni de Sio and Mecacci (2004;, 2021) connote that when artificial intelligence systems make decisions

autonomously it is hard to know who should be held accountable. To address these issues, different scholars have proposed various idea such as Coeckelbergh, (2020) has introduced the idea of shared accountability, Diakopoulos (2016) presents algorithmic accountability and van Wynsberghe (2013) fosters relational responsibility. These ideas notions underscore that responsibility is not fixed and AI solely is not responsible and accountable rather responsibility depends on interrelationships and specific context.

This development from individual responsibility to systematic accountability is aligned closely with post humanist critique.

2.1. Rethinking Agency and Responsibility

Posthuman theorist Haraway (1991) argues that technologies have been deeply evolved into more-than-human assemblages with agency-like capabilities and human autonomy has been compromised. Haraway (1991) offers the concept of cyborg that decenter the rigid human-centric approach. Likewise Braidotti (2013) and Verbeek (2011) strengthen Haraway's (1991) argument by adding that technology is not a neutral instrument anymore because it shapes human behavior, social and moral orders. Therefore, accountability should reconceptualize involving human, technology and non-human entities. Verbeek (2011) states that accountability refers to trace responsibility to human designers and technological involvement in moral mediation. Bostrom, Yudkowsky and Zuboff (2014, 2019) state that broadening of accountability lens is very important because surveillance systems, brain-enhancement tools and artificial intelligence are playing crucial role to shape human thinking, behavior, decision-making capabilities and the choices they make.

Garfinkel (2016) observes that technology silently interacts with us in our daily activities and influence us with its full potential. Algorithms plays a great role to structure our lives. It not only perceive your search result on internet and your interest in advisement, algorithms can also easily predict your ethnicity, Brown (2016) adds it can give clues who is terrorist, Angwin et al. (2016b) includes that algorithms can guess exactly what you will play, Dewey (2016) connects that what you want to read, Kharif (2016) adds up that it can determine weather you get loan or not, Nash (2016) incorporates that it can understand that if you have been defraud, O'Neil (2016) connotes that it knows that if and how have you been targeted in presidential election and have you been fired, Angwin et al. and Wexler 2016, 2017) note that algorithms can comprehend that how have you been paroled or how have you been sentenced. Algorithms enhance the worth of big data through analyzing it but this also escalates the risks of public privacy. The more data is collected and processed, the greater the chance that sensitive personal information can be misused, exposed, or stolen. Strong protection is required for the safety of individuals

because algorithms that make data valuable can also make individuals vulnerable (Martin, 2019).

According to the viewpoint of Cech (2021), effectiveness of specific indicators vs simplicity is based on the targeted educational groups. Xie et al. (2024) add that accountability in education department does not exist insolation rather it depends on the surrounding conditions such social expectations, cultural values and institutional policies and specific educational groups internal stakeholders such as teachers and administrators, or external bodies like regulatory authorities. Accountability plays a great role to prevail fairness, transparency, trust and justice in the system. Automated decision-making accountability is required to ensure that policy makers, system designers and developers take full responsibility for the repercussions generated by their algorithms and who is accountable.

Rai et al. (2023) state that everyone must be accountable for their actions so that unethical behavior and conduct can be accountable and discouraged inside the organizations and systems. Zhang et al. (2023) explore that it is mandatory for ethical leadership to address the loopholes existing in a system on the base of ethical issues and this concept is known as Moral Identity. Ma et al. (2023) state that moral identity helps leaders to have moral schemes that give a rode map to guide their actions For example, moral identity has the potential to be predicted as a determinant associated with pro-social behavior, such as contributions and philanthropy, which can be inversely linked to unethical behavior, such as dishonesty. Zhao et al. (2023) narrate that leaders with high moral standards, understand their responsibilities, and live by principles and values contribute to societal improvement.

In contradiction, Shin et al. (2022) give the definition of accountability that it is a proper mechanism to inquire the providers of automated decision-making systems and make them to accept responsibilities for the repercussions produced by their programmed decision making. This notion accentuates the need of establishing procedures that can ensure accountability and responsibility of the producers, policy makers and other designers.

2.2. Gaps in Current Scholarship

Even though existing literature is rich with discussion on responsibility and accountability from different perspective, still there are three vivid gaps. One of the gaps is anthropocentric bias because most researches explore accountability from a very limited approach of human centric. These studies centralize human beings emphasizing their legal responsibilities and institutional regulations overlooking the potential agency of technologies (Stahl, 2021; Floridi, 2013). Secondly, the field of study is marked by fragmented ethical frameworks such as Lyon (2018) focuses on surveillance ethics and

Mittelstadt et al. (2016) analyze artificial intelligence, yet few attempts have been made to explore this area comprehensively by incorporating both agencies human and technological artefacts. Finally, the application of Verbeek's Mediation Theory on literary text *We Are Satellite* is entirely neglected by scholars even though very influential theorist such as Haraway (1991), Braidotti (2013), and Verbeek (2011) offer theoretical lens for reimagining accountability by integrating both agencies technology and human beings.

2.3. Research Gap and Contribution

This study fills the unexplored area of research by addressing important issues related hybrid agency, accountability, responsibility in the rapid development of technology. This research paper employs mediation theory to analyze Sara Pinsker's novel *We Are Satellite* from cultural contexts that dramatize emerging technologies. Pinsker's novel offers lens to explore how technological devices of cognition enhancement could be a great threat for the society. Yet no study to date has explored the novel *We Are Satellite* mobilizing Verbeek's mediation theory to fill this gap. This study demands for an urgent call for the accountable use of technology. This is a significant research gap in spite of developing body of literature on technological accountability, ethical governance and posthuman perspectives human-technology integration. This study addresses this gap by arguing that fictional technologies are not merely speculative but serve as critical mediators for understanding accountability in contemporary debates on human enhancement.

3.Frame of Work

In a research study, a theoretical framework serves as a conceptual foundation. This framework offers a lens to interpret and inquire a phenomenon under a specific investigation. In the field of investigation, theoretical framework serves to clarify the assumption of study, establish it within academic discourse and develop a coherent connection between the research questions and the methods. In literary study, theoretical framework assists scholars to interpret literary text with exact meanings through applying cultural, theoretical, and philosophical perspectives. It enhances the originality and validity of the analysis. Maxwell (2013) defines the theoretical framework that it functions in duality such as it explains the lens of inquiry and legitimizes the interpretation of researches.

This study draws out primarily on the theory of technological mediation proposed Peter-Paul Verbeek. This theory investigates sci-fiction novel *We Are Satellite* written by Sarah Pinsker. This novel represents an implant of brain enhancement that transforms

ethical, social and personal life. Therefore, to comprehend such dynamics, it is mandatory to employ a framework that can acknowledge technological artefacts as active mediators of human experiences.

While posthuman perspective offers a philosophical context which decenters the central position of human beings and highlights the ever evolving relationship of man-technology integration over time. As Harraway (1985, 1991) argues that man-machine integration has made the hybrid identity of human beings.

Mediation theory rests upon the concept of post phenomenology that articulated by Don Ihde (1990, 2009) for the first time. Mediation theory focuses on how technology shape perception, identity, and morality of human beings. Researchers incorporate these perspectives to analyze the sci-fiction story and demonstrate the hybrid nature of identity, moral responsibility and family dynamics.

3.1. Post phenomenology: The Foundations of Mediation

The term post phenomenology is articulated by Don Ihde. Ihde (1990) illustrates that technologies are not neutral rather relational entities that shape the human's experiences, behaviors and their engagement with the world. Later on, Ihde (2009) argues that post phenomenology emphasizes how artifacts amplify some aspects of reality while diminishing others, thereby structuring perception and experience.

These ideas are further extended by Peter-Paul Verbeek and Robert Rosenberger. Verbeek (2015) explains that technological tools co-constitute actions and subjectivity of living and other non living entities. Rosenberger (2014) extends that the use of mandate artifacts, such as benches or bumps actively shape human behaviors. The same concept applied to *Us Are Satellite,* the implant is not just a technological brain device but a mediating artifact mediate the identity, social relationship and cognition.

3.2. Mediation Theory: Technologies as Co-Constructors

Peter-Paul Verbeek (2005) underscores that technological artifacts co-construct the human-world relations by mediating interpretation, perception and moral agency. In his later work, Verbeek (2011) connotes that mediation process goes beyond epistemic dimensions into ethical ones, with technologies vigorously participating in moral decision-making.

Verbeek (2011) state that there are various forms of human-technology relationship. In embodiment forms, technological artifacts become integral part of the body such as brain implants that enhance cognition, in the form of hermeneutic relationship, technology offer framework for interpretation of reality such as implant data that show intelligence. In the relations of alterity, technological tools works as quasi-others

that co-construct identity. Ultimately, in the relation of background, technologically innovative gadgets secretly influence environment such as society normalize these technological artifacts in different ways.

Verbeek (2015) employs these categories and explores that technology extend beyond the limitation of boundaries and redefine ethical frame work and cultural boundaries. In the novel, the brain implant, pilot embodies of all these relation such this device enhances cognition of its users, shapes the social stratification, alters the identity and prevails the structural inequalities that are invisible.

3.3. Ethical Mediation and Accountability

Verbeek (2016) states that technologies extend beyond the moral neutrality shaping morality. He argues that technologies do not merely influence the behaviors and perceptions but also impacts on the capabilities of decision-making skills. Likewise, Swierstra (2015) underscores the normative challenges posed by technological innovation that focus on the urgent need to call for accountability of distributed moral agency.

Latour (2005) further emphasizes these concepts and shows that human beings are never solely responsible in this system of sociotechnological rather both entities, humans and nonhumans are responsible on equal ground. This same issue is raised in the novel, *We Are Satellite* through the role of Implant, Pilot. This implants raises pressing inquires: who is genuinely responsible and accountable for harms? should corporations be responsible? Should families be accountable for their choices of technological artifacts? or should technology be responsible themselves? If technological artifacts harm the other entities, how it should be addressed?

Current studies discuss these question in technology ethics. Andreas Matthias (2004) proposed the idea of responsibility gap. Likewise Santoni de Sio and Mecacci (2021) underscore various responsibility gaps that AI has created. van Wynsberghe (2013) explores for value sensitive design that integrates ethical values into technology. Authors apply these insight to *We Are Satellite* to impart moral agency to cognition enhancer device "Pilot" that complicated the idea of accountability.

3.4. Posthumanism: De-Centering the Human

Posthumanism provide a broader philosophical horizon. To analyze this novel through technology mediation theory along with posthuman perspective make this study more prolific and creative. Haraway (1991, 1985) introduced the concept of cyborg to destabilize the rigid boundaries between man and machines and demonstrates that identities are very fluid and hybrid.

Likewise Braidotti (2013) states that posthuman extends beyond the boundaries of anthropocentrism and make hybrid identity by embracing techno-human assemblages. Braidotti (2019) adds that subjectivity and knowledge must be reconceptualized in the context of man-machine integration. Another key theorist Hayles (1999) argues that cybernetics and technological artifacts shaped the subjectivity and transform identity. Ferrando (2019) challenges human exceptionalism and advances the philosophical project of posthuman theory. Wolfe (2010) extends this idea and acknowledges the hybrid identity of human beings placing human within broader technological and ecological networks.

All these perspectives underscore that in Pinsker's novel *We Are Satellite*, technological tools are not external and brain implants become the integral part of human body. It reveals the roles of corporations and other institutes; how do they naturalize the use of such tools in the society? In this way, Post humanist perspectives strengthen mediation theory by placing the technological implants within cultural context and focusing on what it means to be human?

3.5. Application to We Are Satellites

The application of mediation theory offers appropriate philosophical lens to analyze Pinsker's novel in depth. Rosenberger (2014) demonstrate how technological artefacts silently co-construct man-machine practices that is the same concept exists in the novel. For instance, how implants are normalized in daily life activities and how they recognize daily life in the novel. Molder and Swierstra the (2012) explain "soft impacts" of technology along with the transformation of ethical and cultural values that resonate with the portrayal of novel. This novel shows the division of society between resisters and adopters of implants.

In the novel, Val's resistant to brain implant, pilot reflects her preference for bodily integrity, on the other hand, Julie's adoption of the device embodies professional pressure created by technological mediation. Children of Julie and Val portray divergent trajectories: their daughter, Sophie's activism demonstrates new forms of ethical agency by technology while their son, David's estrangement due to adopting the brain implant reflects embodiment relations of Verbeek's (2011) theory. Johnson and Powers (2006) consider computers as surrogate agents, while Crawford and Ananny (2018) focuses on the limitation of transparency in algorithmic accountability. Burrell (2016) explores how machine learning

Burrell (2016) explains how machine learning systems produce opacity, a concept relevant to the lack of clarity around implants in Pinsker's world. Diakopoulos (2016) also stresses the importance of accountability frameworks for technological systems, echoing the novel's tension between corporate responsibility and personal choice.

4.Discussion And Analysis

Pinsker's novel, *We Are Satellites* is analyzed through the mediation theory that is originated by Verbeek. This analysis explores how human lives are shaped through adoption of technological enhancement. Verbeek (2005, 2011) argues that "technologies are not simply neutral instruments that facilitate our existence…they give shape to what we do and how we experience the world" (Verbeek, 2011, p. 1). In the novel, *We Are Satellite,* the brain implant "Pilot" functions as a mediator the recognize cognition, restructure social hierarchies, reshape individual identity, and redefine normalcy. By examining the novel through technological mediation, authors explore how the Pilot operates as a cultural force extending beyond the role of a technological device that reveals concerns about human agency, responsibility, and accountability in the future of posthuman.

Pinsker's novel *We Are Satellite* (2021) is a sci-fiction novel having speculative nature that explores ethical, social, and psychological repercussions of emerging cognitive technological devices. It represents a near-future society, where technological narrative centers on a family system. All family members' lives are transformed by the brain implant, "Pilot." This technological artifact promises productivity, enhanced focus, cognitive efficiency, becoming   symbol of opportunity, success and cultural norm in the society. The whole story follows four family members, Julie and Val (parents) and their children, Dvid (son) and Sophie. They confront various challenges collectively and individually in a technological mediated world. Julie embraced the implant under societal pressure, David adopted it to meet academic and athletic pressure, Val resists it to sustain traditional cultural   and Sophie is unable to adopt it due to medical contradictions. The novel explores the themes of technological dependency, ethical responsibilities, reconfigured human, designed marginalization, inequality and societal division amid rapid innovation.

4.1. Embodiment and Restructured Perception

Verbeek (2011) defines in Moralizing Technology Understanding and Designing the Morality of Things embodiment relations as instances where "technological artifacts become extensions of the human body " (p. 8) that mediate the perceptions. In the novel, the Pilot incorporates directly with the brain of users and filters their directions along with sharpening focus. David shows dramatic cognition enhancement after adopting the implant that illustrates Verbeek's (2011) claim that "mediating technologies amplify specific aspects of reality while reducing other aspects" (p. 9). In the novel, Dr. Jordaan expresses that "Stimulation of the right temporoparietal junction... results in the ability to get as close to actual multitasking as a person can currently get" (Pinsker, 2021, p. 30). The Pilot adoption technologically co-constructs the David's considerations and behavior rather than being neutral or unmediated device.

These repercussions go beyond individual considerations to the cultural values. Authors explore the theme of marginalization and fragmented societal structure under the influence of innovative technology. An other character in the novel, Sophie can not adopt Pilot due to epilepsy. She becomes marginalized by the new cognitive standard in the society. Val raises question about the adoption of implant in these words: "How could a kid whose sister has epilepsy ask his mothers for voluntary brain surgery?" (Pinsker, 2021, p. 20).

Natural cognition of Sophie is reinterpreted as deficient against the mediated baseline of technology. This theme resonates in Verbeek's perception that "technologies help to shape how reality can be experienced and interpreted" (2011, p. 6). In this way, the Pilot prevails a new norm of intelligence by transforming Sophie's difference into perceived inadequacy.

4.2. Hermeneutic Mediation and Reframing Reality

The term hermeneutic means "being the study of interpretation" (2011, p. 8). Verbeek (2011) defines hermeneutic relations as technologies "provide a representation of reality, which requires interpretation" (p. 8). In the novel, the Pilot shapes how users interpret their experience. David illustrates his new cognitive state in these words: "Enormous. Electric" (Pinsker, 2021, p. 38) after activation of the brain implants. Implant filters his self-understanding by structuring of cognition. This concept highlights the Verbeek's (2011) viewpoint "mediating artifacts help to determine how reality can be present for and interpreted by people" (p. 9). This aspect hermeneutic mediation remains contested in Pinsker's novel.

Val perceives the Pilot as distorting experience in the society: "voluntary brain surgery. I'd be crazy to agree to this, and you're crazy to ask" (Pinsker, 2021, p. 20). Her

rejection represents that technologies offer interpretive grids whose meanings remain socially contested. As Verbeek states that "technologies help to shape what counts as 'real'" (2011, p. 9), but different social groups may interpret these realities in different ways. Opposition of Val positions her as morally resistant who is socially marginalized. This scenario demonstrates how non-users are also marginalized and constituted through technological mediation due to their refusal rather than adoption.

4.3. Alterity Relations and the Pilot as Quasi-Other

Verbeek (2011) highlights alterity relations where technologies appear as "others" that humans must negotiate in this matter. The Pilot role symbolizes as a quasi-other and demands users adjust to its processes. pre-activation anxiety of David "What if it doesn't work? …What if I don't like it?" (Pinsker, 2021, p. 6) represents the device's autonomous presence in his life.

Likewise existence of quasi-otherness becomes evident in the resistance to the Pilot of Sophie. In a scene, She shared his feeling of fear with David: "You know what I do when I'm scared? I pretend I'm somebody who wouldn't be scared" (Pinsker, 2021, p. 36). This reflects how pilot becomes an oppressive tools of "other" that shapes societal hierarchies. Verbeek states that technological artifacts have "scripts" that "prescribe how their users are to act" (2011, p. 10). Similarly, the Pilot has script which enhances cognition or falls behind. That creates social pressures in the society. This reflection underscores the Verbeek's (2011) viewpoint that technologies "participate in our ways of doing ethics" (p. 1). In this way, boundaries are diminished between human and non-human agency and it complicates responsibility assignment.

4.4. Background Relations and Invisible Structuring

Verbeek (2011) states that when technological entities interfere with the structure of environment and do not demand conscious attention, it gives the room to the background relations that constitute invisible structure. In the novel, brain implant becomes embedded in workplaces and schools as a default expectation. The statement of David's teacher "It's not a fad. It's an optimizer. They get more out of their brains" (Pinsker, 2021, p. 26) reveals that technological artifacts have been silently constructing the structure of environment. Ms. Sloan expresses her multitasking focus: "Right now I'm talking to you and I'm thinking about my lesson plan for tomorrow" (Pinsker, 2021, p. 26). In this way, the Pilot becomes a "background moral force" that creates implicit demands reconfiguring society.

Resistance of Sophie is difficult because she goes against not merely a technological device but she opposes an entire environment that was restructured and normalized by the Pilot. Verbeek (2011) states that in technological mediation specific

actions are "invited" while others are "inhibited". In the novel, technological cognition enhancer temporal device, Pilot ensures productivity while restraining unmediated cognition. This theme resonates in the Pinsker's critique of the advanced technological system that once society welcomes new technologies systematically, the individual choice of using these technological artifacts extends beyond personal wishes or desires. Society makes their adoption mandatory by building silently invisible structures. They become unavoidable requirements.

4.5. Accountability and the Moral Dimension of Technology

Verbeek (2011) argues that technologies "participate in our ways of doing ethics" (p. 1) and mediate decisions and actions. Julie struggles with the ethical ramification resulting in refusing the brain implant for Sophie due to epilepsy. Sophie becomes victim of oppression, marginalization, fragmented identity and rejected child by the society and to some extent by family members. Julie states that it is a "Small price to buy our kid's happiness" (Pinsker, 2021, p. 20). This dilemma exemplifies Verbeek's (2011) notion that "artifacts have morality" (p. 12), that raises thought provoking questions about responsibility distribution. The novel's story illustrates Verbeek's (2011) viewpoint that in technological culture, moral responsibility is distributed across non-human entities and human beings. The Pilot reconstructs ethical perception in family system, politics, business, and education. It challenges the traditional notions of accountability that place responsibility only in humans.

4.6. Human Agency and Posthuman Identity

Pinsker (2021) demonstrates transformed agency of human under the influence of technological mediation. David's achievements are integrated with Pilot and are inseparable from it. Her sister, Sophie insists on human agency rejecting unequal enhancement. David expresses his new cognitive process in these words: "I'm doing times tables, like they told me to. They said it's like rubbing your head and patting your stomach" (Pinsker, 2021, p. 36). This demonstrates Davids compromised agency that is co-constructed. Verbeek's (2011) framework demonstrates that agency is "reconstructed" and "redistributed" rather than diminished. The Pilot amplifies certain identity of posthuman where human and technology can not be separated. This is why Verbeek (2011) calls to ethical approach as "a matter of human-technological associations" (p. 13) not just human centeredness.

4.7. The Threat and Promise of Technological Futures

Pinsker (2021) mediates on the dual nature of technological future through Verbeek's framework. Pinsker underscores both resilience and dangers within mediated agency. Sophie becomes activist and run a movement against Pilot ensuring human agency only. Her activism embodies resistance to technological normalization and makes mediation visible. This illuminates Verbeek's call for "responsible design of technology" that acknowledges moral mediation. It suggests that when technological artifacts inevitably mediate human perceptions and experiences, humans have right to resist or reject it on the base of ethics. That is why, designers and users must take responsibility of being aware of its influence and repercussions.

4.8. Recommendations and Policy Implications

Analysis of the novel, *We Are Satellite* through Verbeek's mediation theory makes it clear that technological artifacts are not neutral. They shape human behaviors, perceptions, morality, social relations, decision-making, identity, and human futures. This reconstruction of human lives demands that technology designers, educators, policy makers, and other authoritative entities must take greater responsibility in guiding how emerging technologies should be introduced, integrated and regulated into society. The stakes of reconstructed identity, mediated human agency and technological responsibility are high, that is why governments, tech-designers and innovators must have ethical foresight and they must make ethically responsible choices when designing and using technological artifacts.

4.9. Policymakers: Building Inclusive and Responsible Regulation

Pinsker's (2021) novel highlights the urgent need of developing legal frameworks that can anticipate the profound consequences of cognitive and bodily enhancements for the policy makers. The implant in Pinsker's narrative prevails uneven access. It privileges those who can afford it and marginalizes those who reject it or are unable to adopt it due to certain reasons. These insights reflect a potential reality where technological innovation risks increase the inequality, social anarchy, unless preemptive policies intervene. That is why regulatory frameworks must deal with the issues of safety, efficacy, accessibility, affordability, and equity. D (2011) that ethical frameworks, therefore, policymakers must recognize that neglecting inclusivity leaves gaps in adoption and fundamentally alters the status that who is permitted full participation in society. Policy should ensure technologies do not become instruments of marginalization, exclusion but rather tools for collective human flourishing.

It is mandatory for the policymakers that they must incorporate public deliberation into the establishment of technology-related policies. Haraway's (1991) notion of calling

for situated knowledge closely aligns with this perspective. It reminds us that technological future should be shaped through participatory dialogues instead of dictated by governments, elites, powerful corporations. Legislation must be concerned about such issues in technological world.

4.10.   Designers and Developers: Embedding Ethics in Design

Pinsker addresses the technological designers and developers and she highlights the urgency for the ethical reflection at the level of design itself. Verbeek (2006) focuses that technologies are not neutral because they mediate human identity and they carry moral weight. This is why; designers are co-shapers of human practices rather designing neutral technological tools.

For instance, in the novel, the Pilot implant not merely enhance cognition, but also it mediates identity formation, family dynamics, moral responsibility and human behaviors. It is urgency that designers must realize their moral responsibilities and embrace their role as moral actors.

This demands embedding "value-sensitive design" principles that anticipate social implications of their generation. Technologies must be designed carefully with foresight into how they will shape or reconstruct cultural norms, relationships, identities, decision-making, and behavior. In technological development, accountability and transparency must be key principles in the development and deployment of technologies.

Another key principle should be included in designers responsibilities that they must instill awareness to the technical users of its long term risks instead of hiding them. In the novel, the opacity of the brain implant mirrors the dangers of releasing innovations without adequate disclosure. Designers should not conceal them rather they should assist users to understand that how these technological artifacts can affect their lives.

4.11.   Education Systems and Public Awareness: Cultivating Technological Literacy

In this technological era, another vital implication lies in education and public engagement. According to Verbeek's notion, technology extends beyond mediation of actions and alters ethical awareness. Therefore, individuals must have critical thinking and they should evaluate technological entanglement. In the novel, characters suffer and struggle to navigate ethical responsibility in relation to the Pilot. Users often externalize blame to its creators or the technology. This dynamic demands for the urgent need for arranging technological literacy programs in communities, schools, colleges, and universities.

Educational institutions and educators should take responsibility to cultivate awareness of how technological tools alter decision-making, social order, and identity.

Such kind of literacy equips future generations to make informed choices about the prevailing technology around them. Haraway's notion of "responsibility-in-relationality" underscores that accountability must be shared across the networks of non-human and human entities. In this way, education empowers individuals to understand their roles in the society.

4.12.   Shared Accountability and Distributed Responsibility

Who is accountable for the negative repercussions of technology? is one of the most pressing questions raised by Pinsker in the novel. The dominated narrative in the novel demonstrates that how responsibility is often deflected. Most often, users blame designers, designers blame demands making by users and need of time to keep pace on equal ground with others, and policymakers often blame market forces. Mediation theory finds the actual solution here. As technologies are not neutral, they shape human life and his surrounded environment. That is why responsibility and accountability must be distributed across all entities that are involved. So users must critically engage with the technologies they adopt, designers must embed ethics into design, and Policymakers must regulate responsibly. In this way, responsibility is thus not a matter of locating a single culprit but cultivating a system of shared accountability.

This distributed approach also resonates with contemporary concerns over artificial intelligence, surveillance technologies, and biotechnology, where no single actor can claim—or escape—responsibility. Verbeek's framework therefore offers a model for rethinking accountability not as a reactive process but as a proactive ethical commitment shared among all stakeholders.

5.Conclusion

Pinsker challenges contemporary society to rethink about the technological development and deployment through her speculative narrative. The brain implant, Pilot serves as a metaphor for the risks of unreflective adoption and unregulated innovation. The analysis of the novel, *We Are Satellite* through mediation theory represents that technologies must be approached not merely as tools but as co-creators of human futures. This research paper demands for the urgent call to the policymakers, designers, governments, users and other authoritative entities for their shared responsibilities. This paper appeals to the shared entities that they should develop and deploy technologies within frameworks that can balance innovation with human agency, ethical responsibility, and social justice. It suggests that the future of technology should not be left to market forces or technocratic elites alone. In lieu of it, technological future must be cultivated as a collective ethical project, guided by foresight, inclusivity, and responsibility. If these

values are embedded into the structures of educational institutions, governance and design, society can ensure us that technological artefacts such as Pilot play vital role in enhancing human flourishing in lieu of diminishing human enhancement.

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