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《Book Review》

HUMANISM IN THE DIGITAL AGE: READING "THE THEORY OF EDUCATIONAL TECHNOLOGY" BY RUPERT WEGERIF AND LOUIS MAJOR

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ABSTRACT

This paper presents a critique-of-humanism reading of The Theory of Educational Technology (2023) by Rupert Wegerif and Louis Major, drawing on Paul B. Preciado's biopolitics and Jacques Derrida's hauntology. It explores how Wegerif and Major address the concept of future humans and their interaction with social structures, their use of Heidegger's Techné to frame technological engagement, and the knottiness of bio-socio-technical systems and agency. The paper also evaluates their proposed framework for designing educational technologies that foster productive dialogue. While this analysis serves as a book review in educational technology and dialogic space, it also offers a commentary for those interested in posthumanist analysis approaches.

Keywords: technological engagement, critique-of-humanism, educational technology, biopolitics, hauntology, dialogic space, posthumanism

Review: Wegerif, R., & Major, L. (2023). The theory of educational technology: Towards a dialogic foundation for design (1st ed.). Routledge.

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Sheng-Hsiang Lance Peng, Chih-Ching Chang: Humanism in the Digital Age: Reading "The Theory of Educational Technology" by Rupert Wegerif and Louis Major

Reading the Book

In their book The Theory of Educational Technology: Towards a Dialogic Foundation for Design (2023), Rupert Wegerif and Louis Major present a "dialogic" approach to educational technology, addressing current challenges such as climate change, online misinformation, and the rise of Artificial Intelligence. The book is structured into 11 chapters, each of which explores and contextualises important theories, using case studies to showcase their application across educational settings, from early education through to adult continuing education. At the end of each chapter, brief summaries highlight the practical design implications from these theories. This paper functions as both a book review and a commentary, providing an overview of the book's content while also including personal reflections on the concepts discussed. In this discussion, "WE" in capitalised form will stand for the authors of this paper, whereas "the authors" will denote Wegerif and Major, the writers of The Theory of Educational Technology.

This paper offers a critique-of-humanism interpretation—challenging the human-centred assumptions that often underpin discussions in educational technology and questioning the emphasis on human agency, control, and rationality in shaping educational practices. By examining the ways in which technology, non-human actors, and broader systems interact with learning environments, this paper seeks to expand the understanding beyond a purely human-centric perspective.

Future of Education, Future Humans; Forming Individuality, Forming Social Structures

At the beginning of their book, Wegerif and Major point out that most research on educational technology is carried out with minimal or no connection to theory. When theory is referenced, it is almost exclusively educational theory, with little attention given to the theory of technology. This reflects a held belief that teaching ought to be driven by teaching methods rather than technological factors—a claim often accepted as self-evident. Typically, we view tools as mere aids designed to help us achieve our goals, operating under the assumption that we, not the tools, retain control. It seems unusual, and even disconcerting, to imagine tools as possessing any form of independent agency. However, Wegerif and Major challenge this conventional perspective by suggesting that human

interaction with technology has always been more fundamentally linked than often recognised. They argue that much of what we consider fundamental to education—such as literacy and numeracy—actually serves the interests of technologies, particularly those involved in communication. For instance, the authors highlight that learning to read and write, as well as using mathematical symbols in early education, can be viewed as forms of engagement with technology. This interaction is not dissimilar to the use of modern technologies like social media platforms or artificial intelligence language tools. They propose that these educational practices, while ostensibly traditional, are closely connected to technological frameworks that shape how we learn and communicate. By recognising literacy and numeracy as technologies themselves, Wegerif and Major invite us to reconsider the nature of educational tools and their role in shaping human activity, suggesting that our relationship with technology is far more foundational and pervasive than simply using tools for our own ends.

WE find the most compelling aspect of Chapter 1 to be the authors' insight that technology exerts an internal influence on us. They propose that technology is not just an external tool we use, but something that fundamentally shapes our understanding of ourselves and our decision-making processes. This perspective suggests that technology is integrally related to our personal and collective identity, guiding how we perceive the world and interact with it. According to Wegerif and Major, contemplating the role of technology in education is thus an exercise in envisaging how we want to shape both the future of educational practices and the development of future generations. It implies that the design of educational technology is far more than just a matter of creating tools; it is about deliberating on the essence of technology itself and its potential trajectories, as well as rethinking what education fundamentally is and what it could become. WE are drawn to linking this concept with the theoretical perspectives of Paul B. Preciado. Preciado's work, particularly in Testo Junkie (2008), looks into how technologies influence and reshape human identity, body politics, and societal structures. Preciado's perspective provides understanding of how technology intersects with personal and collective identities, aligning with Wegerif and Major's view that technology is intrinsically bound to how we perceive and engage with the world.

Preciado's notion of technologies of the body and biopolitics also underscores the idea that technological tools are not neutral artefacts but active agents that affect human subjectivity and social norms. According to Preciado, technologies integrate power relations within their frameworks that influence how individuals understand themselves and interact with their environment. This echoes Wegerif and Major's argument that technology shapes our identity and decision-making processes. In this light, educational technologies are seen as part of a broader biopolitical apparatus that moulds educational experiences and societal expectations. Preciado's perspective suggests that the impact of educational technologies extends beyond their functional use; they contribute to the formation of new ways of being and understanding in educational contexts. Furthermore, Preciado's exploration of future gender identities and technological mediation provides a lens for contemplating how technology shapes future educational practices. Preciado's ideas propose that technologies are not static but evolve and interact with human subjectivities in knotty ways. This view complements Wegerif and Major's assertion that designing educational technology involves rethinking not only the tools themselves but also education and its projected directions. Preciado's perspective implies that the design of educational technology must account for how these tools will shape and be shaped by emerging forms of identity and social dynamics. It challenges us to consider how educational technologies can foster new educational paradigms and future societal developments.

Both Preciado and Wegerif and Major argue that engaging with technology in education requires a forward-thinking approach that considers its broader impacts on future generations and societal structures. Preciado's work highlights that technological integration in education is not just about implementing new tools but involves an interaction between technology, evolving human identities, and societal norms. This helps us grasp how educational technologies define and are defined by these factors, insisting on a reflection on their potential to influence future educational practices and human development. Wegerif and Major mirror this perspective, suggesting that technology acts as a force that intersects with personal and collective identities. They emphasise the importance of viewing educational technology design as more than just tool creation; it involves considering how these tools can affect the future educational and societal landscape. By synthesiwing these insights, WE recogniwe that they collectively provide a perspective on how technological influences will reshape education. This approach prompts us to reflect on both the immediate and long-term effects of these technologies in moulding educational practices and transforming social structures, as well as in shaping individualities.

The Question Concerning Technology: Heidegger's Techné (and the Ghosts)

Hauntology, a term popularised by philosopher Jacques Derrida (1994), refers to the presence of past ideologies and their ongoing influence on contemporary practices and beliefs. It suggests that the past continually affects the present through its lingering "ghosts", which are the residual effects of earlier ideas, technologies, and societal structures. This perspective encourages to reconsider how past influences shape current realities and how they might continue to do so in unforeseen ways. In this context, Heidegger's examination of techné, as articulated by Wegerif and Major in the mid-chapter, provides a ground for applying hauntological analysis to the relationships between technology, education, and the "ghosts" that inhabit these domains. Heidegger's analysis of techné in The Question Concerning Technology reconsiders the ancient Greek concept of techné, which includes both artistic and practical crafts. Heidegger's emphasis on techné as a form of poiesis—creative production that reveals previously hidden aspects of reality—reflects hauntology's concern with how past modes of understanding persist into the present. For Heidegger, techné is not merely about creating physical objects; it is a process of revealing and disclosing new truths, a poetic act that brings forth what has been concealed. His example of the Greek artisan crafting a silver chalice illustrates this process. The artisan's role is not just to impose their will but to harmonise various elements the design (eidos), purpose (telos), and material (hyle)—to bring the chalice into being. This collaborative process reflects how technology, in Heidegger's view, mediates between the physical and the conceptual, influencing and being influenced by both.

Applying a hauntological perspective to Heidegger's example, WE can explore how the crafting of the chalice embodies the interaction between past practices and present technological engagements. The artisan's process of creation is fundamentally associated with the ghosts of earlier technological and artistic traditions. These traditions shape how the chalice is conceived and produced, revealing the ways in which past methodologies continue to inform contemporary practices. The chalice, as a technological object, is not simply a product of the artisan's immediate intentions but also a manifestation of historical influences and cultural expectations that haunt its creation. In education, this hauntological approach invites one to reflect on how historical pedagogical practices and technological developments continue to shape current

educational paradigms. Just as the artisan's work is a result of historical and contextual factors, modern educational technologies are influenced by past educational theories, technological advancements, and societal values. These "ghosts" of past educational practices and technologies continue to impact how current technologies are designed and integrated into educational settings. By recognising these hauntological elements, WE maintain in this piece that this exploration provides an appreciation of how educational technologies are not just tools for the present but are imbued with the legacy of prior practices and ideologies. This awareness calls for an examination of how historical influences shape our educational practices and technological designs, and how these practices, in turn, might affect future generations. Heidegger's example of the Greek artisan, when viewed through a hauntological lens, spotlights the interdependencies between technology, education, and the enduring presence of past influences, urging one to consider how these "ghosts" continue to (re)shape our understanding of both fields.

Wegerif and Major reference Heidegger's concerns about the overemphasis on quantifiable metrics in education, especially in response to crises like the Covid-19 pandemic. These concerns reveal additional dimensions when viewed through hauntology, which invites one to consider the lingering presence of past traumas and the unfulfilled possibilities that continue to shape educational practices today. In their critique, the authors highlight a gap in educational technology research during the pandemic: the overwhelming emphasis on "learning loss" and its economic implications overshadowed potential insights into more existential experiences. This focus on the measurable detracts from the possibility that students, isolated from traditional schooling, might have encountered more forms of learning—experiences that defy quantification and challenge conventional educational metrics. Hauntology here, with its emphasis on the spectral presence of past and unfulfilled potentials, offers a lens through which WE can understand these overlooked dimensions. Heidegger's idea of "Being" as something that might be encountered in stillness or contemplation, rather than in the pursuit of standardised results, echoes the hauntological concept of engaging with the ghosts of past educational practices and their dormant potentialities. In this sense, the pandemic experience might be seen as an opportunity for students to engage with these "ghosts"—those aspects of learning that are often dismissed in favour of more quantifiable outcomes. The "lightning flash of insight" that Heidegger alludes to represents an oftenineffable understanding that transcends standardided testing. It is these

fleeting, defining experiences that haunt the edges of conventional educational frameworks, challenging and reconsidering what it means to learn and grow.

By focusing narrowly on quantifiable outcomes, one risks perpetuating a form of educational technocracy that prioritises economic productivity over more existential engagements with knowledge. This preoccupation with metrics, while offering some measure of economic utility, obscures the more detailed perspectives on learning that might emerge from unstructured or contemplative experiences. The danger Heidegger identifies is that modern technological networks—such as those used to measure learning outcomes—predefine the boundaries of acceptable questions and answers, therefore constraining one's educational imagination and reducing human beings to mere "standing reserves" (Wegerif & Major, 2023, p. 98) for economic gain. In this light, the "ghosts" of education go beyond just remnants of past pedagogical methods but also include the intangible experiences that traditional metrics often fail to capture. Hauntology invites one to acknowledge these spectral dimensions, recognising that meaningful learning might lie beyond what is immediately measurable or economically advantageous. Thus, by engaging with these educational ghosts, WE contend that individuals are more capable of comprehending the oftenoverlooked facets of human development by shifting away from an exclusive emphasis on quantifiable metrics.

Bio-Socio-Technical Systems, Agency, and Dialogic Space

Wegerif and Major's discussion offers a critique and expansion of the traditional understanding of agency in relation to technology in Chapter 7. They challenge the conventional model where individuals are seen as having intentions and then designing technology to realise those intentions. Instead, they propose an alternative view rooted in systems theory, suggesting that the interaction between humanity and advanced communications technologies, such as the AI-enhanced internet, creates a new level of autopoietic self-organisation. This perspective emphasises that technology and humans co-evolve, generating new anticipatory systems, meanings, and motivations that move past just human intentions. In this context, autopoiesis refers to the capacity of a system to self-organise and produce its own structures and functions. Wegerif and Major argue that the integration of AI and other advanced technologies fosters an interaction where human agency and technology are closely interlinked, creating new forms of self-identity that are not solely designed by individual intentions but emerge

from the interactions between humans and technology. This approach suggests a shift from viewing technology as a simple means to seeing it as a co-creator of human identity and agency.

However, the authors also critique Hui and Halpin's 2013 work for underestimating the essential role of education in this new paradigm. They argue that while Hui and Halpin highlight the importance of specific technological design features for the development of autopoietic self-identity, they overlook how education must be integrated into the design of bio-socio-technical systems. The role of education, as Wegerif and Major emphasise, is not just to facilitate the use of new technologies but to purposefully mould and adjust the new forms of self-identity that these technologies help to create. WE wish to reengage with biopolitical perspectives at this point. This critique highlights the relevance of examining how educational practices determine and are determined by the developing intersection of technology and identity. Education is not limited to a backdrop but a central actor in the formation of new identities within the bio-socio-technical system. It plays a role in shaping how individuals interact with technology and how these interactions, in turn, contribute to the formation of self-identity. By incorporating education into the design of technological systems, one can ensure that these systems contribute to the development of purpose-driven and self-empowered identities rather than only reinforcing existing structures of power and control. Here, education becomes a tool for navigating new technological landscapes. It should not be seen as a passive recipient of technological advancements but as an active participant in the cocreation of self-identity and agency. This perspective is in line with a biopolitical approach that examines how power, technology, and identity are interconnected and how they steer and are steered by each other. It requires a rethinking of how educational systems can be designed to support the emergence of new forms of identity and agency in an increasingly technologically mediated world.

Wegerif and Major's further discussion on the concept of meaning in technology and education assesses the often unexamined assumptions critically about technology's role in shaping human meaning. Their exploration begins with a deconstruction of the prevalent notion that technology and human meaning are essentially contradictory, emphasising that this assumption may be traced back to phenomenological perspectives like Husserl's, which put forth that meaning is exclusively a product of human consciousness. According to Husserl, meaning arises from the subjective experience of consciousness, and

since technology lacks consciousness, it is presumed to lack built-in meaning. Wegerif and Major challenge this view by suggesting that meaning is not confined to individual consciousness but is better understood as a shifting system of divergences. Applying the biopolitical perspective afresh, this critique reflects a similar stance to the notion that meaning is not simply an individual construct but is closely bound up with broader socio-technical systems. By redefining meaning as "a difference that makes a difference" within a system of information, they highlight how meaning is ingrained in and emerges from self-organising networks rather than solely from individual experiences. This perspective resonates with biopolitical theories that emphasise how systems of power, technology, and information shape and are shaped by human and nonhuman agents alike. In this context, technology can be seen not merely as a tool that either enhances or detracts from human meaning but as a component of a larger biopolitical system that participates in the creation and transformation of meaning. The integration of technology into educational systems thus becomes an arena where meaning is negotiated, contested, and reshaped, revealing how technology influences and is influenced by the biopolitical forces at play. Furthermore, by emphasising that meaning is a property of systems larger than individual consciousness, the authors underscore how the development and use of technology in education can be seen as a process of co-constructing meaning within these systems. This perspective challenges the reductionist view that technology's role is limited to either supporting or undermining human meaning. Instead, it suggests that technology's impact on education involves information, power, and self-organisation, which ultimately contributes to shaping new forms of meaning and agency.

In dialogic space, this understanding complements the wider theoretical framework that meaning arises from the interaction of interactions rather than being a static attribute of individual consciousness. By reconceptualising technology from a basic pathway for pre-existing human meanings to an active participant in the creation of meaning, WE foster a dialogue that embraces the entangled character of human and technological agency. This dialogic framework emphasises that human agency is not only a matter of individual intentions but is interrelated with the socio-technical systems within which one functions. In this space, meaning, agency, and technology are seen as mutually dependent components within a bio-socio-technical system. From this standpoint, integrating technology into educational contexts becomes a collaborative endeavour where meaning is continuously negotiated and

redefined. This approach echoes biopolitical theories that perceive human agency as distributed across networks of power, technology, and information. It suggests that technology does not only reflect or distort human intentions but shapes educational experiences and outcomes. Thus, the significance of educational technologies is not predetermined but is energetically co-constructed through their interactions with both human and non-human agents within these systems. This dialogic view highlights that technology's role in education is integral to the evolving human meaning, offering understanding of how meaning is formed and transformed within biopolitical frameworks.

Productive Dialogue and the Unknown: A Realistic Foundation for Design

What makes *The Theory of Educational Technology* valuable is Wegerif and Major's argument that educational technology should be crafted to engage learners, promote peer collaboration, broaden the dialogic space and personal identity by immersing them in enduring cultural conversations, and encourage learners and communities to participate in exploratory dialogues with the unknown. They outline four essential dimensions, which offer a structure for maximising the potential of educational technology. WE would now like to look into these dimensions further.

First, Wegerif and Major highlight the importance of designing educational technology that fosters engagement, particularly through dialogic interactions. WE agree that engaging students is crucial for initiating dialogues, especially in digital environments. They argue that creating interest and drawing learners into participation is a key starting point. WE also concur with their assessment that once dialogues are underway, they generate their own momentum, cultivating stronger participation. However, WE would add that the initial step into dialogue is particularly sensitive and needs attentive management, a point they also acknowledge.

In face-to-face settings, creating a warm and trusting environment is important, particularly in small group discussions, where students need to feel comfortable sharing their ideas. This echoes the broader understanding of dialogic pedagogy, where mutual respect and attentive listening are central to constructive interactions. WE agree with Wegerif and Major's observation that online education poses more difficulties in establishing this environment. While

AI-powered online tutors are evolving and may offer new opportunities for dialogue, WE remain cautious about their capability in replicating the quality of interpersonal exchanges. Although these technologies show promise, WE suggest additional research-based evidence is needed before fully embracing them as substitutes for live dialogue. Their discussion of tools such as Flipgrid, Padlet, and Miro to engage students asynchronously is also insightful, and WE agree with their potential to enhance online participation. These platforms encourage students to share their interests, promoting active engagement even outside of synchronous learning. Additionally, the use of edubots to match students with peers who share similar interests is a promising method to foster a sense of belonging within a university community. While WE acknowledge the potential of these technological solutions to enhance engagement, WE also recognise that engagement may vary depending on the context and implementation.

Second, Wegerif and Major argue that digital technology has unlocked new possibilities for education through peer-to-peer learning in online communities. WE agree with their assessment that these digital spaces can enhance collaborative learning. Their examples, such as mobile-mediated peer-to-peer learning, the MIT Scratch community, and online role-playing games, demonstrate how such connections can both inspire and sustain educational engagement. WE particularly find the MIT Scratch community noteworthy. Initially intended as an alternative educational platform, Scratch has now become an important aid to augmenting school-based teaching, especially in computing. This suggests that similar online communities could also support other subject areas, particularly where there is a shortage of qualified educators.

However, WE believe that the aforementioned digital platforms should be seen as enhancing rather than replacing traditional educational methods. Wegerif and Major envisage a future where online communities supplement rather than replace schools, a perspective WE share. Nevertheless, while these digital tools offer benefits, their integration into traditional educational settings needs to be approached with mindfulness. It is important that they serve to complement existing teaching practices rather than compete with them. Thus, while Wegerif and Major's positive outlook on the role of digital technology is convincingly supported, a balanced approach to its implementation in education is essential.

Third, Wegerif and Major advocate for designing educational technology to broaden the scope and duration of learning. They suggest that technology should connect immediate, localised interactions with the more extensive,

ongoing discussions typical of scientific and practice-based communities. WE support this perspective, as it highlights the opportunity for technology to extend educational experiences beyond the traditional classroom. Their example from Kevin Martin's research in Kenya, outlined in Chapter 2, demonstrates how local peer-to-peer resources among farmers were enhanced by integrating external open educational materials. These materials provided up-to-date expert knowledge and illustrate how technology can link localised learning with broader, global perspectives.

In a similar vein, Shengpeng Shi's research in China, presented in Chapter 8, showcases an approach that combines traditional teaching methods with modern practices of dialogue. Shi's concept of "teaching the dialogue so far" might initially seem like a conventional method of knowledge transmission, but it emphasises that knowledge is always evolving and part of a continuous conversation. This approach encourages students to participate by sharing their own views, supporting the idea of an expansive and interactive learning environment. WE agree with the authors' argument that expanding learning spaces and timescales is important. However, the potency of these strategies relies on their implementation. For instance, while integrating global knowledge into local contexts is advantageous, it must be done thoughtfully to enhance rather than complicate learning. Similarly, while fostering active participation in ongoing dialogues is beneficial, students need appropriate support to engage. Thus, while Wegerif and Major's call for expansion is valid, careful consideration of practical implementation is important for achieving the desired outcomes.

Finally, the authors stress the need for educational technology to go beyond just conveying existing knowledge and to also prepare learners for engaging with the unknown and future uncertainties. WE second their view that while technology can enhance learning and participation, it must also be designed to handle unpredictable outcomes. In Chapter 6, Heidegger's notion that education should connect learners with mysteries beyond our current knowledge is particularly relevant. This perspective supports the idea that educational technology should not only facilitate the growth of existing knowledge but also enable learners to confront and explore the unforeseen. Chapter 9 reinforces this by demonstrating how digital role-playing games can immerse learners in scenarios that challenge them with future uncertainties.

WE also agree with Wegerif and Major that designing technology to

accommodate encounters with the unexpected is crucial. The case studies they present offer useful examples: Chapter 6 illustrates technology crafted to foster dialogue with different and unpredictable perspectives, while Chapter 9 features an online role-playing game designed to engage learners with future challenges that are naturally ambiguous. Nevertheless, while WE support their argument for integrating elements of uncertainty into educational technology, WE also acknowledge the difficulties encountered. Designing for the unknown requires a prudent middle ground between introducing novel experiences and maintaining structured learning objectives. Effective design must ensure that these opportunities for confronting the unpredictable are both impactful and relevant to educational goals. Thus, while Wegerif and Major's emphasis on preparing learners for the future is insightful, it is important to address the practical challenges of implementing such technology.

Beyond Humanism

In the concluding paragraphs, Wegerif and Major argue that the voices of emerging technologies should be integral to our discussions about designing the future of education. They emphasise that new technologies, with their evolving capabilities and impacts, offer perspectives that could construct and amplify educational practices in ways we may not yet fully comprehend. This perspective is particularly pertinent in light of current media discussions around the educational potential of platforms like TikTok and the power of Generative AI. These technologies, with their capacity to reshape how we learn and interact, are indeed beginning to assert their influence, suggesting that their inclusion in the dialogue is not just beneficial but becoming more indispensable.

However, while WE align with Wegerif and Major's call for incorporating technological perspectives, WE also aim to critique this from a posthumanist standpoint, which challenges traditional human-centred perspectives by emphasising the interconnectedness of humans, non-human entities, and technology, and questioning the privileged position of human agency in shaping the world. Traditional humanism often positions human experience and agency as the central focus, frequently sidelining the role of technological entities and their own forms of agency. By solely focusing on the voices of new technologies, there is a risk of perpetuating a simplistic view where technology is nothing more than a tool or medium rather than a co-participant in the

educational process. Posthumanism urges us to consider a more discerning method that recognises technology not just as an adjunct to human experience but as an influential and adaptive contributor in shaping our educational landscapes. This perspective challenges us to move beyond a human-centric view and consider in more detail how technologies influence and co-create educational experiences. Therefore, while the integration of technological voices into educational dialogues is important, it should be approached with cognisance of how traditional humanistic biases might constrain our understanding of these interactions. Embracing a posthumanist perspective can help us recognise more fully the tricky, interrelated functions that both human and technological entities play in the evolution of education.

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