

RESEARCH ARTICLE

Open Access

# Generative AI and re-weaving a pedagogical horizon of social possibility



Richard Hall<sup>1\*</sup>

\*Correspondence:  
rhall1@dmu.ac.uk

<sup>1</sup> Department of Education  
and Technology, School  
of Applied Social Sciences, De  
Montfort University, Leicester LE1  
9BH, UK

## Abstract

This article situates the potential for intellectual work to be renewed through an enriched engagement with the relationship between indigenous protocols and artificial intelligence (AI). It situates this through a dialectical storytelling of the contradictions that emerge from the relationships between humans and capitalist technologies, played out within higher education. It argues that these have ramifications for our conceptions of AI, and its ways of knowing, doing and being within wider ecosystems. In thinking about how technology reinforces social production inside capitalist institutions like universities, the article seeks to refocus our storytelling around mass intellectuality and generative possibilities for transcending alienating social relations. In so doing, the focus shifts to the potential for weaving new protocols, from existing material and historical experiences of technology, which unfold structurally, culturally and practically within communities. At the heart of this lies the question, what does it mean to live? In a world described against polycrisis, is it possible to tell new social science fictions, as departures towards a new mode of higher learning and intellectual work that seeks to negate, abolish and transcend the world as-is?

**Keywords:** Artificial intelligence, Contradiction, Dialectical storytelling, Indigenous protocol, Mass intellectuality, Transcending, Weaving

## An opening: the dialectical storytelling of contradiction<sup>1</sup>

In 2023, the accelerated implementation of large language models, and their representation as artificial intelligence (AI), catalysed discussion about potential societal, economic, cultural and political implications. For instance, in the United Kingdom (UK), His Majesty's (HM) Government hosted an international AI Safety Summit that focused on managing and mitigating risks from such technologies (HM Government, 2023). This focus on risk and regulation was also key to discussions in national and transnational jurisdictions (see, for instance: Government of Canada, 2023; The Elders, 2023; Tobin, 2023). Yet, the Stanford Institute for Human-Centred Artificial Intelligence (HAI)

<sup>1</sup> Standard definitions of generative AI focus upon its creative potential, in relation to data and content, and situate this as an extension of generic or traditional AI, which tends to focus upon the use of large language models and technologies to solve specific tasks within predefined protocols and rules. Rather than simply focusing upon human productivity, innovation and creativity, in this article generative AI offers the potential to augment relationships and relationality. Such augmentation offers new ways of being, knowing and doing in the world, for humans with themselves, in-community, with technologies and non-human animals. As such, the term generative offers a way of understanding AI not simply in terms of efficiencies, rather as an unfolding or re-imagining of how we reproduce our ecosystems for good.

Annual AI Index Report (HAI, 2023) highlights a complex, emergent terrain, in which risk is entangled with opportunity. The report situates examples that include: potential environmental benefits in energy use alongside the energy consumption demanded by AI systems; increases in the ethical misuse of AI whilst the demand for AI-related professional skills is increasing; and, significant socio-cultural differences in how populations consider the potential benefits of AI, across the globe. Against this background, educators are required to make decisions about their engagement with emergent technologies.

One way of thinking these complex issues through, is in relation to storytelling around the relationships between humans, their environments, and technologies like AI. One recent, relevant story is Gareth Edwards' 2023 film *The Creator*. This is set in a world that has a contradictory relationship with AI, and its manifestations in both robots and robot-simulants of humans. Crucially these manifestations are to be considered historically and materially, situated in time and place, and defined culturally and politically. Opening against the explosion of a nuclear bomb in Los Angeles in 2055, we are informed by a General in a joint sitting of the United States Congress that AI launched this attack, and must be eradicated globally because it is an existential threat to humanity. Yet, we are also informed through the narrative that in an area known as New Asia, AI continues to be embraced. Rather than simply being seen as an input into labour, to be used and discarded, it is a partner in society and culture, contributing to wider webs of life (Lewis, 2020; Moore, 2015).

In this story, there is a clear contradiction between AI living in a direct relation with humans in New Asia, and it being treated as means of production and control in the West where human–robot relations are mediated through work. Thus, following the nuclear explosion, the film shows a world that is culturally-divided, mapping across to existing geopolitical stories about the construction and meaning of society. Moreover, the story of AI-human relations is a metaphor for ecological relations that continue to be Othered. By questioning our sociability in this moment, we are able to unfold the extent to which humans directly relate to other organisms and their ecosystems (Gesturing Towards Decolonial Futures (GTDF), n.d.; Ware et al., 2018).

Rethinking sociability, alongside our relationships in and with the world, underpins analyses of the extent to which AI must exist within particular forms of human control, or else be deemed to be beyond the pale. We might ask, are there futures beyond our desire to exploit AI's ability to work, to expropriate others (for instance, in our equivalents of New Asia), or to extract resources and value from the land of Others? Equally, we might ask whether we can only frame AI as generative on relatively narrow and individualistic human terms (Sharples, 2023). Is it simply generative as a pedagogical tool enabling productivity within closed, capitalist systems, through 'individual performances', like cognitive offloading, the co-regulation of individual learning, and hybridity (Lodge et al., 2023)?

In helping us to think through these contradictory futures, *The Creator* presents two possible narratives. In its primary or dominant narrative, machinery remains as a constant and fixed source of control, realised in the tools of warfare, and the defence of particular conceptions of liberty and human rights inside capitalism. It is systemically locked-in to a set of ideological protocols that cannot allow an alternative story to be told, or shaped by new modes of agency. In this it reminds us of the immutable

and uncontested political terrain that informs desires to ‘unlock new levels of human progress’ (Google Deepmind, 2023), in which the identification of progress is collapsed within narrowly personalised and economic characteristics of what it means to be human. As a secondary narrative opens-up from New Asia, a range of other perceptions of AI emerge, including the engagement of robots and robot-simulants in cultural practices like worship in temples, in economic co-production on farms, and in social coexistence in communities. Here, the AI reproduces human variability, in its approach to engaging with differential histories, material practices and cultures.

Such variability reminds us of protocols for reproducing ‘Indigenous social good’ (Cordes, 2020, p. 67), which are not predicated upon a closed ethics of care and dignity. In systems of thought with a closed ethics, ‘the entire human-AI system’ is defined around the limitations of primarily caring about the dignity of humans alone (Sharples, 2023). Whilst such a closed ethics frames AI for Education against a range of intersectional inequalities based on gender, neurodivergence, race and ethnicity, it cannot imagine futures beyond personalisation, individualised tutoring and capitalist work (Google Deepmind, 2023). Yet, where our standpoint aligns with other social goods, we are prompted to reimagine the relationship between humans and AI, not as a system, but as an unfolding set of variable relations, within a wider ecosystem that deserves justice, predicated upon acts of love and the dignity of difference.

These socio-cultural and socio-economic contradictions are deepened as they are reproduced through an individual’s set of relationships. In *The Creator*, a US Army Sergeant, Joshua Taylor, is recruited, based upon his history of hunting AI in New Asia, to locate and destroy a new weapon, engineered by ‘Nirmata’, the architect behind non-Western advances in AI. Taylor represents how the West’s political narrative is predicated upon military action in New Asia to locate and destroy AI, including this new weapon, named ‘Alpha O’. This new weapon is believed by the West to be capable of disabling the military capability upon which its hegemony is reproduced, and thereby shifting the balance of its perceived war, in favor of the AI.

The contradiction erupts once ‘Alpha O’ is revealed as a child-like, robot-simulant, whom Joshua names ‘Alphie’. Through the metaphor of a vulnerable child, a new set of contradictions opens-out, forcing those of us who live and work in the global North to question the ability of life and programming to be separated, objectively and unconditionally, such that the essence of what it means to live, and be human (conscious) can be reified. It resonates with Cordes’s (2020) idea that ‘the treatment of AI will involve new metrics upon which human and poly-being communities will understand themselves and build relationships’. Whilst reminiscent of the questions about enslaved life raised by the androids Batty, Deckard and Rachael in Ridley Scott’s 1982 film *Blade Runner*, or the sociopathic life raised in James Cameron’s 1984 film *The Terminator*, Alphie is situated inside a very different cultural context, with a specific material history.

Importantly for this article, Alphie’s emergence has a different dialectical conditioning, which reveals a deep contradiction in what passes for storytelling around futures, and the role of technology in those futures (see, for instance Asimov’s 3 Laws of Robotics, which cannot escape modes of enslavement). The idea of dialectical storytelling is fundamental in understanding how AI might develop. It entwines concrete, material histories and contradictions, so that we might describe how those shape particular, social

structures, cultures and practices (Hegel, 1942; Marx, 1867/2004). Beyond AI, this also serves as a heuristic for understanding the contradictions in how humans relate to non-human Nature, the environment and its ecosystems. As a result, the contradictions opened-out by *The Creator* are both ontological and pedagogical, pointing towards horizons of possibility that might be at once dystopian or utopian.

A dialectical approach forces us to question our fetishisation of particular forms of life, and the limits of how life might be augmented, or the material and idealistic conditions that enforce a particular bioinformational mode of augmentation (Peters, 2012; Savin-Baden, 2021). When thinking about what it means to be alive, or to live, this raises a further set of contradictions in how and why we reproduce a society predicated upon the creation of particular forms of value, and demanding concomitant structures and cultures of individualism, responsibility, borders and boundaries, and subjectivity/othering. A dialectical approach helps us to understand the flows between: concrete experiences of life and abstract ideas about that life; shifts in our qualitative understanding of life, based upon our quantitative explanations of it; and our ability to negate, abolish and transcend what-is (Dunayevskaya, 2002; Lenin, 1981). It is the potential for a new storytelling.

### **Unfolding the potential for a new storytelling with new archetypes**

In the movement of stories, deeply humane and values-driven tensions emerge, in relation to: the narratives that we trust about how we have created the world; for whom or what do we care as we reproduce particular, social narratives of the world; and, who or what should be free. At the heart of this is a question: what does it mean to live? In the dominant story, we are offered ready narratives about the ways in which technology, its subcomponents, and its modes of consumption/production, are being constantly folded into a particular kind of capitalist service. Yet points of departure highlight how this is also the reproduction of a system that is exploitative, expropriative and extractive (Saito, 2017; Wendling, 2009).

In these stories from the global North, there is a tendency to reproduce technology as an element of the environment (or of Nature), to be tamed as subservient to that service (Barr, 2023; Center for AI Safety, 2023), or to be renewed as a factor in human liberation (see the critique in Houlden & Veletsianos, 2022). This also shapes social relations, because the labour that reproduces technology and its components is also folded inside such descriptions. Revealing the relationship with technologies, generated inside contested narratives of growth, enables ideas of liberty, belonging and democracy to be constructed within those narratives. In the context of dominant stories, like the West in *The Creator*, these ideas are often revealed as vengeful nationalism, focused upon the extermination of AI's degenerative potential, through the imposition of authoritarian, human responses. This reminds us of the limits to liberty and human rights described by Bruff and Tansel (2019) and Saglam (2022), in relation to authoritarian (neoliberal) political governance.

Thus, dystopian futures tend to describe any conception of consciousness amongst the tools that are used in production and social reproduction as a threat. Imagining an AI that is generative for anything other than human value-production, tends only to be seen alongside other, counter-hegemonic narratives of alternative futures that threaten

to destabilise capitalism. Moreover, they also threaten the dominant archetypes of capitalism, witnessed in the entrepreneur, techbro, consumer, freelancer, and so on (boyd, 2017), and also in the idea of ‘Shapers, Drivers, Creators, Embedders and Users’ (NHS England, 2023). Such archetypes are rarely more than individualised, lacking the individuation that enables archetypes to represent social and communal needs and to tell their stories in a generative manner (Jung, 1953).

Such limited archetypes are increasingly informed through other narratives about what it means to live in an age of polycrisis, where societies are affected: economically, by inflation, low growth and weak demand; environmentally, for instance, in relation to the risk placed upon planetary boundaries by human activity (Stockholm Research Centre (SRC), 2021); and, geopolitically, in terms of war and global division (Roberts, 2023). Informed by an inability to imagine a restorative future, this has catalysed narratives that focus upon techbro futures (Carrigan et al., 2021), for instance represented in the films *Mad Max* or *X-Machina*. It also unfolds against right-wing, anti-ecological narratives about futures that reinforce petro-masculinity and fossil fascism (Malm & The Zetkin Collective, 2021).

Yet, such dystopian futures, in which technology must be annihilated or further shackled, inside a disrupted sociability, sit in contradiction with other potential futures that seek to uncover the potential for belonging, connection and freedom. Here, other archetypes are available to us. In *The Creator* these are witnessed in the acts of the storyline: the child; the mother; and, the friend. Whilst these archetypes are available for storytelling, they also contain the potential to reconnect us with long-standing complexes of experiences that are collective, universal, unconscious, and symbolic (Jung, 1953). These might include the ancestor, warrior, and elder, whose stories might be woven, and which contain the potential to shape new forms for our futures-thinking, at the intersection of hope, social justice and technology, as a pedagogical tool (Andreotti, 2021; GTDF, n.d.).

At this intersection, the archetypes of capitalism, already distorted in an age of polycrisis, are placed into contradiction with the unfolding relationality woven from counter-narratives emerging from cultures and communities made marginal by it. The emergent, conditional and material nature of such potentiality is important in enriching our engagement with AI, and with ourselves-in-community. In *The Creator*, the relationship between Alphie and Joshua evolves through praxis, as ideas of family, community, and friendship are internalised and materialised. Both individuals are, to a greater or lesser extent, augmented or are, apparently, defined technologically. Whilst the former’s humanity lies at the core of the narrative, the latter’s humanity is only enabled through the prosthetics that enable him to live. Whilst both are grappling with questions of who might deserve to go to heaven, and who might be free, this brings into question how we consider ourselves, and our being, doing and knowing, augmented by each other, inside webs of life that are placed under extreme stress by human activity.

Against dystopian stories, this centres hope, social justice and technology against the question of how we might situate ourselves inside a wider horizon of belonging, care and love. Such a horizon moves beyond hegemonic, dystopian thinking about futures, in order to consider how we might integrate indigenous questions around the use of AI, and thereby address what it means to live in this world. This is deeply ontological and pedagogical (onto-pedagogical), and points to the contradictions shaped in relation to

stories about AI that question the integration of technology into our webs of life and ways of living (Peters & Jandrić, 2019).

In thinking through these contradictions in our appreciation of futures, this essay moves on to address the issue of what methods might be used to support generative higher education (HE) futures at the intersection of hope, justice, and educational technology? It seeks to connect the potential for thinking dialectically about technology in educational contexts, in order to overcome the apparent, dystopian inevitability of our futures. The storytelling here invokes the process of sublation (Hegel, 1942; Marx, 1867/2004), or of the negation, abolition and transcendence of the hegemonic, capitalist circumstances inside which our everyday contradictions emerge, including in HE. It does so by questioning how current thinking around use of AI and technology limits our horizon of possibility.

By bringing this horizon into relation with both Marx's (1857/1993; 1867/2004) focus upon the general intellect, and a reading of indigenous conceptualisations of AI, the potential exists for connecting educational technology to narratives of hope and social justice constructed around transcendence. At its heart, this questions whether new futures might be described that tell-out our souls as we struggle for a new, social horizon.

### **A note on dystopian social production in capitalist HE**

For Marx (1867/2004, p. 447), the production of value, materialised as profit or surplus, rests upon:

*the special productive power of the combined working day... The social productive power of labour, or the productive power of social labour. This power arises from co-operation itself. When the worker cooperates in a planned way with others, [they strip] off the fetters of [their] individuality, and [develop] the capabilities of [their] species.*

In social production, workers operating under a specific division of labour, are governed through the creation, circulation and consumption of commodities acting as private property. They are brought together in a range of structures/institutions, like universities, and fused with means of production that include machinery, data, buildings, in order that existing capital might be valorised. Marx (1867/2004, p. 450) states that this creates 'purely despotic' and intensified working conditions, as labourers compete for both a wage, and for status.

Whilst social production inside HE is grounded in a status-driven, division of labour that is positional and competitive, it also develops its own narratives of empowerment and as a calling or labour of love (Tokumitsu, 2014). These narratives demand that academic and professional services staff are always-on, and that they are able to innovate by developing their pedagogical practice, increasingly through personal investment in their own technological and data literacy. The wealth of discussion around generative AI catalysed in the concerns around ChatGPT is illustrative of this (Eapen et al., 2023; Hancock et al., 2023). Yet, our analysis of *generative* is shaped by the contradiction between, first, the competitive search for value by universities and colleges on a global scale, and second, learning and teaching as a values-driven calling. Generative has 'a historical form

peculiar to, and specifically distinguishing, the capitalist process of production' (Marx, 1867/2004, p. 453).

The peculiar form of capitalist HE gives us stories that idealise social mobility, entrepreneurship, and equality, diversity and inclusivity. However, as a machine for the augmentation of human capital, for instance, in generating spillover activities, commercialisation, and knowledge transfer (Hall, 2021), 'its final form is always the same—a protective mechanism whose organs are human beings' (Marx, 1867/2004, p. 457). Individuals labouring in HE are welded and wedded to a specific social organisation of the labour process, and are individually-riveted to a single fraction of the work required to produce surpluses (realised as money, student outcomes, impact, and so on). In this social mode, individuals need to enrich their fraction of that work, in order to maintain their own productivity (1867/2004, p. 464).

Emphasising the particularity of the social inside capital's material history, Marx (1867/2004, p. 469) describes the collective worker, engaged in a specific, social production process, made up of individualised, particular workers or groups of workers, performing special functions that are one-sided, and defined in relation to the whole mechanism. This compels particular, alienating modes of activity, inside cultures and practices that force individuals to relate to each other through their commodities, whilst reinforcing the prestige economy of 'the social division of labour' (1867/2004, pp. 471, 472). In HE, this feeds off an alienated, objectified set of relations that are deeply competitive, and which sets workers as: appendages of machinery; branded as the property of capital; corrupted in body and mind; and appropriated by processes (1867/2004, pp. 482, 483, 501).

Thus, the narrative emerging from this analysis of the ways in which workers are organised for social production, stresses the ways in which technology as a means of production augments the value produced in the labour-process. Through Marx (1867/2004, p. 518) 'we see that machinery, while augmenting the human material that forms capital's most characteristic field of exploitation, at the same time raises the degree of that exploitation.' At the heart of this domination is the control of time, reinforced through the enriched appreciation and application of data (Prinsloo et al., 2023). In HE's space-time, narratives coalesce through the idea of the Platform University (Hamilton et al., 2022), which further conditions university work as precarious (Hall, 2021). Moreover, by fusing technologies, flows of data and quantification, behavioural science, and algorithmic governance, it tends to reproduce white, colonial and patriarchal hegemonic norms (Khalil et al., 2023). For instance, biometric surveillance like facial recognition normalises particular behaviours on campuses (Andrejevic & Selwyn, 2020).

In the Platform University, reproduced against ideas of generative AI, algorithmic control is the search for transhistorical certainty, in the refinement of capitalism as *the* spirit that explains and gives energy to human endeavour (Hall, 2021). Yet it emerges dialectically against archetypes that normalise precarity and self-exploiting entrepreneurship, themselves framed against an increasing specialisation of activity, which unbundles components of teaching, research, scholarship and administration. In this dominant story, unbundling enables technology to be marketed in relation to idealised stories of campus security, alongside promises of individualised progression and retention. Yet, such tools, for instance, lecture capture, app-enabled attendance monitoring, or facial recognition:

first, tend to worsen conditions of teaching and learning (Andrejevic & Selwyn, 2020); and second, make invisible certain bodies exploited in toxic working conditions in the global South and the East, whose lives are reduced to producing the technological commodities that serve as use-values in the North (Pun et al., 2020).

This analysis of the conditions that regulate work serves to remind us that the dominant or hegemonic stories that emerge from within the capitalist North will only tend towards reproducing necropolitics (Mbembe, 2019), inside a toxic and dying ecosystem that cannot receive sustenance from other ecosystems (Moore, 2015). Understanding these stories dialectically is a starting point for futuristic social science storytelling, which contains the potential for unfolding a harmonic ecosystem that refuses broken archetypes. By re-engaging with a dialectical theory, in direct relation with indigenous narratives, hope and social justice might emerge in the transcendence of what-was, through the negation and abolition of what-is.

We might begin with the emergence of critical appreciations of the place of AI in (higher) education contexts, focused in large part on the global North. Widder et al. (2023) situate the development of open AI against political decisions grounded in power and political economy, which then inflect the ways in which AI is developed inside institutions and deployed by them. In encountering such a negative, political economic conceptualisation, Goodlad (2023) calls for the integration of humanism and the humanities with technology, in a critical appreciation of AI that is centred around a material history of generating 'accountable technologies developed in the public interest [that] have played a key role in human, more-than-human, and environmental flourishing... [because] versions of what is now called AI can do so as well.' This might be AI generative of variability, released as (pedagogical) partners, not (epistemological) tools (Dron, 2023), through which we might refine our methodological approaches to doing, knowing, and being in the world.

Such a starting point challenges the assumptions upon which our engagement with AI, data, learning analytics, affective technologies, and so on (Prinsloo et al., 2023), are based. It challenges our approach to master narratives, in dialogue with the deep, methodological histories generated through critical race theory, critical feminist theory, and so on. Moreover, challenging master narratives also emerges in psychological research through the contradictions of redemptive and redemption stories, and who has the power to tell them (McLean et al., 2020). By so doing, our starting point unfolds a rich, spiritual and ontological horizon of possibility which brings renewed, living assumptions of AI into contradiction with our hegemonic assumptions, shaped by fear and a lack of control or agency. Transcending this contradiction asks us to consider whether we really must control and exploit the ecosystems inside which our doing, knowing, being and breathing happens.

Transcending the master narratives that have become culturally ubiquitous in guiding our individual life stories and histories (McLean & Syed, 2016), might enable us to reconsider what it means to be generative or good. As theorists of critical race, feminism and disability have shown, this matters for those whose concrete, lived experiences sit outside the dominant construction of good (McLean et al., 2018). Building from these standpoints, we might ask whether it is possible to move beyond dystopian master narratives and archetypes that seek to objectify particular constructions of technology and,

in this case, AI. Is it possible to move beyond narratives that limit our understanding of what it means to live, reducing them, simply, to value-production? Is it possible to describe new narratives that centre human flourishing?

### **Educational technology and the struggle for a livable life**

Centring human flourishing demands the generation of a new horizon of possibility, revealed through an unfolding, dialectical process of *sublation*, or *aufhebung*. Developed in relation to Hegelian/Marxist analyses, this relates our capacities for: first, negating HE as-is, perhaps in relation to nullifying or neutralising its toxicity; second, relating this negation to a process of abolishing the structures, cultures and practices that define inhumane forces and relations of production; and third, using abolition as a point of departure for a new intellectual politics that lifts up, carries forward, or transcends our current skills, capabilities and knowledges. The unfolding process of negating, abolishing and transcending, refracted against the political economy of HE (Dunayevskaya, 2002), helps us to consider a new horizon for intellectual work. It offers a new mode of storytelling, based upon an unfolding dialectic, read against-and-beyond the material and historical contradictions emerging from extant forms of social reproduction.

This dialectical storytelling depends upon a critical appreciation of the contradictions that sit at the heart of our social relations, and the ways in which forces of production, like AI, are immanent to them. At issue is how to negate the concrete and material imposition of, for instance, marginalising uses of AI in HE, in order to abolish the social relations that flow from such imposition, and to transcend these. Transcendence means that our use of AI might engender new modes of living, knowing, doing and being. In *Capital*, Marx (1867/2004, p. 486) highlights that this is a deeply subjective and human activity, because the social process of production contains ‘a qualitative articulation and a quantitative proportionality’. Both the qualitative and quantitative are described historically and materially, and offer opportunities for unfolding a new, qualitative articulation of life.

Thus, Marx argues (1867/2004, p. 515, footnote 33): ‘The field of application for machinery would therefore be entirely different in a communist society from what it is in bourgeois society.’ Later, he (Marx, 1875) would argue against the impossibility of blueprints and utopias being described, given that new communities and societies do not develop on their own foundations, but are stamped with the birthmarks of the old society. Still, he was clear that we must realise communal and associational desires for co-operative, social production, beyond the current conditions of production. This realisation demands real movements that are more than ‘a democratic belief in miracles’ (Marx, 1875), and that centre praxis. In considering our work with AI, our praxis pushes beyond risk-based regulation, to consider how we might engage through generative and open partnerships, inside wider webs of belonging (Dron, 2023) that are ethically-negotiated (Veletsianos, 2023), to unfold a new, qualitative articulation of life.

Beyond miracles, our stories are shaped by how we approach the material history of our engagement with technology, and this depends upon.

*the active relation of [humans] to nature, the direct process of the production of [their] life, and thereby it also lays bare the process of the production of the social*

*relations of [their] life, and of the mental conceptions that flow from those relations. (Marx, 1867/2004, p. 493, footnote 4)*

Highlighting the deep interconnections and contradictions between human engagement with technologies, this critique of technology elaborates: human relations with nature, ecosystems and environment; the structures, cultures and practices of social reproduction that come to dominate; and, the ways in which such domination is predicated upon quantitative, concrete relations that have a qualitative story to tell. At the heart of this contradiction is: first, capital's desire to control living labour through the imposition of new forces of production, and concomitant changes to the social relations of production; and second, our desires for a liveable life.

In stressing the potential for new narratives, grounded in hope at the intersection of social justice, we might return to Marx's (1857/1993) *Fragment on Machines* in the *Grundrisse*. Here, he is clear that the science baked into machinery, through *both* the incorporation of human skills, knowledges and capabilities, *and* the resources extracted from the wider environment, is imposed upon the worker's consciousness through technology. The individual comes to see themselves as lacking understanding, in the process of social production, which reduces their space for agency. Inside HE, a lack of agency is reinforced in the use of technologies and technocratic processes, alongside systems-thinking, which enacts separations between academics, students and professional services' staff, as well as between disciplines. Marx analyses how capital has to work continually and obsessively to ensure its control of human general intellect, instantiated inside machinery, such that it is not liberated for new ways of knowing, doing and being in the world. Yet, that machinery also offers departure points for new liberatory narratives, because it shows the potential for a world or worlds beyond alienated labour.

In imagining worlds beyond, we are encouraged to re-imagine the work of HE, alongside intellectual work in society more generally, such that it obtains new forms that are adequate to the needs of all humans, non-human animals, and the environment. Marx (1857/1993) helps us in this process of re-imagining because he is clear that just as capital has reshaped the labour process, our relations to nature, and our mental conceptions of the world, it is also possible to invert this narrative. For whilst 'machinery develops with the accumulation of society's science, of productive force generally', it can only be reproduced where general social labour lacks subjective power. It can only be maintained where science appears to be a force beyond human understanding and control. Resisting this thereby resists dystopian narratives that distort social relations.

Resistance can be seen as the return of subjective power, and as a form of re-imagination. It enables new stories that foreground how the implementation of technology increases labour-intensity and productivity, whilst also seeking to negate and then abolish the need for necessary labour (1857/1993, p. 693). Such stories remember how objectified labour in the form of machines confronts living labour in the form of humans, as capital seeks to annihilate its dependency upon life. At its extreme this lies at the heart of the West's fears in *The Creator*. However, stories of resistance serve as reminders that capital needs to exploit labour, in order to generate value as its own means of life. It cannot live without labour to exploit, and to give it commodities that can generate surpluses. At the heart of this contradiction between annihilation and yearning there is a

space for re-imagining life and what it means to live in this world. As technology reveals the reproduction of terrains of exploitation, a potential horizon for resistance can be seen, as a new story.

### **Intellectual work and the definition of a new horizon of possibility**

By revealing this unlivable, dehumanising, objective reality, dependent upon the reproduction of prestige, status, and human capital, it becomes possible to negate such dystopian narratives, by reconnecting us with the science of our history, as our agency in the world. Moreover, by revealing the unlivable, and discussing the livable, we are also forced to consider how we breathe within wider webs of life, including in partnership with non-human animals and technologies, and the environment that sustains them. This demands the braiding or weaving of a new story from a different set of material and historical conditions (Andreotti, 2021). It requires that we compost distortions of the world as-is, in order to germinate anew (French et al., 2020; Hamilton & Neimansis, 2018).

Thus, new stories that seek to compost and germinate, enriched through a re-imagining of the generative variability of AI, might also be an act of remembering. Reconnecting humans with the science of their history, and the material history of their science, reminds us that this has been witnessed before. In remembering, AI might serve a generative purpose, similar to that of the elder, able to bear witness to what-was and to help us to (de-)liberate what might be. Here, the 1973 declaration of Chile's President Allende, about the Cybersyn project, resonates as it reminds us that there have been alternative, historical and material conceptions of technology-for-social-good.

*We set out courageously to build our own system in our own spirit. What you will hear about today is revolutionary—not simply because this is the first time it has been done anywhere in the world. It is revolutionary because we are making a deliberate effort to hand to the people the power that science commands, in a form in which the people can themselves use it. (quoted in Miller Medina, 2005, p. 252)*

This revolutionary potential has also been argued for utilising the circulation and distribution techniques and technologies of companies like Walmart, created through human, social cooperation, for communal ends (Phillips & Rozworski, 2019). These are all beginnings for new questions, including how our higher learning might help us build new ecosystems with and through communal technologies, as an act of belonging.

In the *Grundrisse*, Marx (1857/1993, p. 709) articulates the potential for technology to meet communal needs, precisely because technologies contain the capacity to annihilate labour-time. Is it possible then that a new story, or set of stories about AI, for instance, might have ontological and pedagogical potential, enriched through our cultures and practices in HE? Might it be possible for humans to liberate science and technology, increasingly manifest inside (narratives about) AI, to regulate production inside a widening realm of freedom (Marx, 1894/1991)? Such a realm grows precisely because the production of means of subsistence is governed communally, rather than in relation to commodity production and individual gain.

This alternative possibility suggests that intellectual work in relation to AI might focus upon enriching the communal, automatic process of production, rather than

being defined against a narrow horizon of intellectual property and commercialisation. In negating and then abolishing the latter, Marx (1857/1993) encourages us to focus upon the conquest of the forces of nature by the social intellect, or the general intellect. Just as previous historical modes of production have fallen away, the communal reproduction of AI reveals the possibility that the capitalist, dystopian mode of production might fall away (Dyer-Witheford, 2011, 2015). Here, it is possible that working in partnership with AI might enable the liberation of the general intellect, as a form of mass intellectuality that is centred on values like courage, faith, justice, hope and peace. Crucially, such democratic partnership sits in contradiction with the capitalist need for value production, and erupts from our collective refusal of its unlivable life.

Transcendence through mass intellectuality emerges at the intersection of hope and social justice beyond the human, as it is constructed around the white, straight, male, able subject. Such mass intellectuality is a new quality of subjectivity, and a new story for society and community, in which the history of science and the science of history are reimagined at the level of society, as a new, emancipatory horizon. For Hardt and Negri (2000, p. 364), repurposed as mass intellectuality,

*General intellect is a collective, social intelligence created by accumulated knowledges, techniques and know-how. The value of labor is thus realized by a new universal and concrete labor force through the appropriation and free usage of new productive forces. What Marx foresaw is our era.*

In this, it becomes possible to think about intersection of AI and HE as catalysing the potential for a generative set of Commons (Szadkowski, 2019). Commoning in partnership with AI, as witnessed in New Asia in *The Creator*, might therefore offer a moment of negating alienating social relations. Thinking about our relations to nature, the process of production, the social relations that flow from those processes, and the stories that we tell about those relations, such commoning offers the potential for moving beyond negation towards abolition. As will be argued in the next section, this is centred around our imagining a society infused with the richness of decolonial and indigenous practices, revealing and refusing the settler-colonialism and racial-patriarchy of our capitalist HE institutions.

Commoning with AI beyond the literal contradictions of capitalism, renews Marx and Engels's (1846/1998) argument about how authentic communities build freedom, because they are based upon association and reciprocity/mutuality. This does not mean that in transcending what-is, there is no disagreement, tension or contradiction, but they are underpinned by relational accountability. Thus, our future social science fictions must consider how to build relational accountability within and between ecosystems, by developing new archetypes. This includes in our engagement with technology. Such archetypes are enriched in relation to ancestry, the land and ecosystem, eldership, warriorship, and friendship.

Emerging with hope, our renewed archetypes offer the potential for us to transcend/move beyond those of shaper, driver, creator, embedder and users. Instead they offer stories of renewal, recovery and care that negate and abolish dystopian and controlling narratives of growth and de-growth, (non-)living(standards, or stagnation

and depression. They emerge within future science fictions that ask us to remember that every part of us has come from somewhere else, and that we are infused with the Other. To remember this requires that we weave a new story.

*full of passion and enthusiasm for the general well-being, full of self-sacrifice and sympathy..., full of courage and tenacity in order to dare to attempt the most difficult... Right now, in the struggle, in the revolution, the mass of the proletarians learn the necessary idealism and soon acquire the intellectual maturity. (Luxemburg, 1918)*

### **Weaving hope, social justice and educational technology**

The struggle to learn the necessary idealism and acquire intellectual maturity, makes it possible for us to imagine a horizon for transcending *both* HE, *and* a society that requires a particular form of higher learning. At issue is, then what? This lies at the centre of much work on critical hope, which: broadens human potential in ways that do not occlude subjectivity (Hudson, 1982); is not bland optimism, rather a site of potential strength (Thompson & Žižek, 2013); enables a balance between ‘creative possibility and conformity’ (Daly, 2013, p. 165); and, is generative of awakening, substance and existence, rather than reproducing disillusionment (Dinerstein, 2015). Hope enables creative human beings (in partnership with robot-simulants?) to attend to their material reality, and to realise freedom dreams (Kelley, 2002). This unfolds other possibilities for onto-epistemological renewal, in dialogue with social justice, and with radical care for and tenderness towards the world.

Critical hope stands in service of what might be, and contains a worldly attentiveness in the present, as a guide for the future (hooks, 2003). Yet, this cannot be realised by subjugating the non-human, although it might be enriched in anticipatory dreaming with and through the non-human. In this, such dreaming might become its own redemption story, able to reconnect culture, technology and ways of knowing. For instance, a range of emerging, HE funding calls (Arts and Humanities Research Council (AHRC), 2023) generate a desire for knowledge mobilisation that is cross-sectoral, and that works with ‘First Nations, Métis and Inuit rights holders, and Black and racialised stakeholders and communities; and facilitates ‘the sharing of research findings with cross-sectoral stakeholders, indigenous rights holders or Black and racialised stakeholders and communities.’ As a result, questions at the intersection of technology and HE focus upon stories, to ask, for instance:

*how are new technologies, including genomics, impacting the preservation and making or remaking of emerging or re-emerging cultures and historical narratives, particularly among marginalised groups and communities? What risks do these same technologies pose for communities? (AHRC, 2023)*

These are fundamental questions in relation to unfolding or remembering communal desires, and moving beyond a dominant conception of what we lack as individual humans. In addressing them, there is a sense that new cultural understandings might help us reweave ourselves into our webs of life, beyond seeing technology: first, as objectified and separate from us; second, as a means to split our identity into fragments as

workers, academics, students; and third, as something that enables us to project one-sided, archetypal misrepresentations of ourselves onto the world. Reweaving works for a long-view, seeking to negate and abolish what Kinsman and Gentile (2010) define as ‘the social organization of forgetting’, and to transcend this through ‘the resistance of remembering’ (Kinsman, quoted in Natascia, 2012). Remembering is an act of radical kindness, which points towards non-hegemonic, counter-narratives about the world. It is a communal and ecological practice.

Thus, in thinking about AI as a generative horizon of potential, we remember that there are already a range of counter-narratives that are communal and ecological. In a position paper edited by Lewis (2020), Indigenous protocols inform a generous, qualitative articulation of AI in relation to *The Initiative for Indigenous Futures*. Woven into the soul of this work is a desire to think about AI in resistance to ‘a Western techno-utilitarian lens’ (Lewis, 2020, p. 7). This lens cannot enable us to grasp ‘what [AI] are and could be’, precisely because it refracts the world based upon retained ‘prejudices and biases’, which prefigure master–slave relations (Lewis, 2020, p. 7). Instead, the position paper seeks to develop a radical reconceptualisation of AI, and refuses to reify the human at the centre of the universe.

Through such a reconceptualisation, Lewis (2020) highlights the potential for relational paradigms based upon principles and practices of social and environmental sustainability, to create opportunities for intellectual work in society, as opposed to its fetishisation inside universities and their disciplines. Such intellectual work, as higher learning in society, is infused with an ethics of mutuality and care, and the dignity of difference between individuals in any ecosystem, including the potential, rich variability of AI. This frames an archetype of the custodian, or an ethic of custodial care, including in the relation between technologies and traditional knowledges, practices and environments.

Within this re-imagining of relations, Lewis (2020) ‘poses the question of whether AI systems should be given a place in our existing circle of relationships, and, if so, how we might go about bringing it into the circle.’ Existing, dominant narratives from HE institutions in the global North make such an invitation difficult to envisage. Yet, the ability to weave indigenous protocols into an understanding of educational technology is critically hopeful precisely because such protocols emerge dialectically with ways of representing and being accountable to the deep, ethical relationships of a culture. As ethical principles that both guide behaviour and that are constituted by communal behaviours, these protocols are culturally-appropriate and practical (Indigenous AI, 2020). They situate the development of AI systems ‘in ways that are ethically responsible, where “ethical” is defined as aligning with Indigenous perspectives on what it means to live a good life.’ Such an approach helps us to reimagine how we are accountable for our forces of production, which then might also enable new social relations that transcend disciplinary boundaries and structures. Developing new protocols grounded in accountability might enable the skills, ways of knowing, knowledges, and capabilities of HE to be released from within ossified institutions, to enable new ways of doing, knowing and being in society.

Here, deeply-relational acts of kinship are predicated upon emerging and ecological archetypes, and they are materially and historically contextualised. Kite (2020, p. 75) states that ‘[t]hese protocols are rooted in contexts of place, ontologies developed in

that place, and the communities living in that place, from stones to animals to people.' They emerge from a set of material histories incongruent with those in the global North, including in the horizon-scanning of many centres for AI inside universities. Instead, they are closer to the kinship ties hinted at in the communities of the Near East in *The Creator*.

In kinship or in common, protocols or relationships (and their contradictions) might be reimagined dialectically, where relational, intellectual work is shaped through descriptions of mutual and reciprocal, activity and behaviours. This does not mean particular forms of abundance for everyone, rather it means an honest appreciation of what it means to live, and the limits of human desires, inside a world facing polycrisis. The consideration of limits alongside custodial care highlights the material and environmental tensions at the heart of the argument developed here. The emphasis on Indigenous ways of knowing and being that centre reciprocity and responsibility, alongside accountability to all life and ecosystems, must acknowledge the material reality that human engagement with AI generates its own environmental impacts and demands for resource extraction (HAI, 2023). Thus, dreaming, remembering and developing new protocols must recognise the requirement to negate, abolish and transcend exploitative, expropriative and extractive relations. This echoes Marx's humane, philosophical critique of labour inside capitalism (Moore, 2015; Saito, 2017).<sup>2</sup>

Thus, transcending requires that we encode a new horizon of social good, rather than privatised goods. As Lewis (2020, p. 8) argues:

*AI systems will consist of innumerable protocols talking to each other: our goal is to honestly recognize the cultural presuppositions we are encoding, to consciously shape those protocols in directions that will be of benefit to our communities, and to evaluate clearly what kind of relationships we are materializing into the world.*

Again, as Kite (2020) acknowledges, these protocols are not static, and are framed against an extended circle of relations that unfolds dialectically and in contradiction. Such unfolding remind us of the Zapatista invocation that: 'asking, we walk' or *preguntando caminamos* (Marcos, 2002). Full of care for community, this courageously states that we make our own history and our own paths through collective dialogue, based upon where we find ourselves. We can only move towards 'our true heart' (Marcos, 2002, p. 268) in the next moment, by understanding our modes of knowing, doing and being in the present moment. This teaches 'how the world was born and show where it is to be found' (Marcos, 2002, p. 276), as a movement of dignity and forgiveness.

### **On living with care**

Thus, in imagining new social science fictions, these protocols become full of soul. In this they evoke an engagement with how the full variability of human being is realised in a range of different, indigenous approaches to knowing the world (see, for instance, Mataira, 2019; Mikahere-Hall, 2017; Walker et al., 2014). This variety enables us to remember that the variability of our approaches to knowing the world, incorporating different axiologies, ancestries, languages, landscapes, cultures, is a moment of celebration,

---

<sup>2</sup> I am grateful to one of the reviewers of this paper who drew attention to this crucial, environmental tension.

rather than threat. For those seeking to understand how educational technology and higher learning or intellectual work (or even formal HE) might be renewed, it legitimates the unfolding of an ecosystem of protocols for intellectual work in society. Such an ecosystem is based upon an ethics of care that is non-exploitative/expropriative/extractive, and that centres the dignity of difference, variability and belonging. Cordes (2020, p. 67) is clear that '[t]his work will need to be rooted in respect, trust, mutual care-taking, and cognizance of the ecological impacts they/we create.'

Our communities and their ability to hold knowledge and ways of knowing in common, at the level of society rather than commodifying it inside institutions of higher learning, is entangled with our use of AI (Arista, 2020). Respecting this entanglement offers a way of enabling generative approaches to remembering, that connect with and follow through ancestral knowledge and eldership, and which might enable us to compost our solastalgia and grief about the world as-is (Galway et al., 2019). This is completely at odds with the dominant, northern understanding of how AI might be enslaved or controlled, and instead desires 'making kin with the machines' (Arista, 2020, p. 105). Instead, it is a process full of potential for reacquainting 'ourselves with our own communities and systems of customary knowledge that have long been neglected in some places' (Arista, 2020, p. 105).

In becoming reacquainted, we return to Tuck's (2018) invocation that resonates in the contradiction of the archetype of *The Creator*, realized in that of the Child: 'how shall we live?' How shall we define an enriched, interconnected set of environments, in which we all might flourish? How shall we manage our disagreements over responses to poly-crisis, through relational accountability? This refuses capitalism's desire for 'a common, ontological domain of human sociality' (Mbembe, 2021, p. 13). In response, it is possible to look beyond this particular sociality as an anti-life, and instead to yearn for 'an *active will to community*', or 'will to life' (Mbembe, 2021, pp. 2, 3). By engaging in such a deeply relational practice (Yazzie Burkhart, 2004), our starting point cannot be reform of the institutions that we have made, and their particular instantiations of technology, which can only reproduce crisis-driven existences.

Instead, we might think about renewing our acquaintance with educational technology inside the University, with a new pedagogical imperative of asking 'how shall we live?' We might begin by telling new stories of how technology, and in particular AI, might enable us to imagine intellectual work otherwise. A generative starting point is our re-imagining of AI contributing in partnership to an intellectual ecosystem: that supports liberation through border abolition and the enrichment of the Commons/commoning (Wilson-Gilmore, 2023); that negates exploitation and expropriation, by re-imagining research and scholarship with AI for the emancipation of bodies beyond settler-colonialism and racial-patriarchy (Hoofd, 2017); for the creation of new ways of communising care, in order to support a range of intersectional and intercommunal needs (O'Brien, 2023); and, for transcending the desire to extract and commodify knowledge.

In terms of HE, engaging with AI in relation to these moments of resistance and struggle, encourages us to be accountable to deeper, ethical relationships beyond the monoculture of the capitalist market. In this, we are encouraged to develop protocols for imagining a generous horizon for a new society 'where the needs that are today met by the university are met otherwise' (Haiven, 2019). We might even work with generative

AI to consider dialectically how those needs are defined inside a system that forecloses upon our collective survival, in order to unfold new, social and communal needs, which support our authentic individuation (Jung, 1953). This horizon becomes possible where we are able to remember and relive our general intellect, as mass intellectuality, potentially by widening our circle of direct relationships to include AI.

Enacting such a widening demonstrates a will towards emancipation. Yet, as Chuǎng (n.d.) noted, '[t]he only emancipatory politics is one that grows within and against the red dust of the material community of capital.' At the intersection of hope and social justice, our engagement with educational technology must aim to define new protocols as new social relations inside our webs of life, including our deep-rooted connection with other humans, non-human animals and the environment. Re-imagining, dialectically, the relationship between HE and educational technology is one means of telling stories, through which 'we shall simply show the world why it is struggling, and consciousness of this is a thing it will acquire whether it wishes or not' (Marx, 1843).

This re-weaving of a new horizon of social possibility, enabled through intellectual work, is an ontological and pedagogical project. In community, we might see educational technology, realised as generative AI, working with life-in-community, and simply not for us. This enables us to move beyond a limited horizon of the classroom, the laboratory, the spillover activity, the knowledge transfer partnership, towards an appreciation of the classroom as the world, and the world as the classroom. At its heart, this is about enacting protocols with AI that enable remembering and dreaming:

*the world has long since dreamed of something of which it needs only to become conscious for it to possess it in reality. It will then become plain that our task is not to draw a sharp mental line between past and future, but to complete the thought of the past. (Marx, 1843)*

**Acknowledgements**

Not applicable.

**Author contributions**

There is one sole author, who produced, reviewed and approved the final manuscript.

**Funding**

Not applicable.

**Availability of data and materials**

Not applicable.

**Declarations****Competing interests**

The author declares that they have no competing interests.

Received: 30 October 2023 Accepted: 22 January 2024

Published online: 12 February 2024

**References**

- AHRC. (2023). Synthesising research on evolving narratives of histories and cultures. <https://www.ukri.org/opportunity/synthesising-research-on-evolving-narratives-of-histories-and-cultures/>. Accessed 27 October 2023
- Andrejevic, M., & Selwyn, N. (2020). Facial recognition technology in schools: Critical questions and concerns. *Learning, Media and Technology*, 45(2), 115–128. <https://doi.org/10.1080/17439884.2020.1686014>

- Andreotti, V. (2021). *Hospicing Modernity: Facing Humanity's Wrongs and the Implications for Social Activism*. North Atlantic Books.
- Arista. (2020). Indigenizing AI: The Overlooked Importance of Hawaiian Orality in Print. In J.E. Lewis (Ed.), *Indigenous Protocol and Artificial Intelligence Position Paper* (pp. 102–09) The Initiative for Indigenous Futures and the Canadian Institute for Advanced Research (CIFAR). <https://doi.org/10.11573/spectrum.library.concordia.ca.00986506>
- Barr, J. (2023). Meta's Chief AI Guy Says Don't Regulate Us, AI Just Isn't That Smart. Gizmodo. <https://gizmodo.com/meta-s-chief-ai-guy-says-isn-t-that-smart-1850940808>. Accessed 27 October 2023
- boyd, d. (2017). The Radicalization of Utopian Dreams. Apophenia. <https://www.zephoria.org/thoughts/archives/2017/11/20/the-radicalization-of-utopian-dreams.html>. Accessed 27 October 2023
- Bruff, I., & Tansel, C. B. (2019). Authoritarian neoliberalism: Trajectories of knowledge production and praxis. *Globalizations*, 16(3), 233–244. <https://doi.org/10.1080/14747731.2018.1502497>
- Carrigan, C., Green, M. W., & Rahman-Davies, A. (2021). "The revolution will not be supervised": Consent and open secrets in data science. *Big Data & Society*. <https://doi.org/10.1177/20539517211035673>
- Center for AI Safety, The. (2023). Statement on AI Risk. <https://www.safe.ai/statement-on-ai-risk>. Accessed 27 October 2023
- Chuǎng. (n.d.). Red Dust: The Transition to Capitalism in China. *Chuǎng*, 2. <http://chuangcn.org/journal/two/red-dust/>. Accessed 27 October 2023
- Cordes, A. (2020). Gifts of Dentalium and Fire: Entwining Trust and Care with AI. In J.E. Lewis (Ed.), *Indigenous Protocol and Artificial Intelligence Position Paper* (pp. 58–68) The Initiative for Indigenous Futures and the Canadian Institute for Advanced Research (CIFAR). <https://doi.org/10.11573/spectrum.library.concordia.ca.00986506>
- Daly, F. (2013). The Zero-Point: Encountering the Dark Emptiness of Nothingness. In P. Thompson & S. Žižek (Eds.), *The Privatization of Hope: Ernst Bloch and the Future of Utopia* (pp. 164–202). Duke University Press.
- Dinerstein, A. (2015). *The Politics of Autonomy in Latin America: The art of organising hope*. Palgrave Macmillan.
- Dron, J. (2023). The Human Nature of Generative AIs and the Technological Nature of Humanity: Implications for Education. *Preprints*. <https://doi.org/10.20944/preprints202310.0433.v>
- Dunayevskaya, R. (2002). *The Power of Negativity: Selected Writings on the Dialectic in Hegel and Marx*. Lexington Books.
- Dyer-Witheford, N. (2011). Digital labour, species-becoming and the global worker. *Ephemeris: Theory and Politics in Organization*, 10(3/4), 484–503. <http://www.ephemerajournal.org/contribution/digital-labour-species-becoming-and-global-worker>. Accessed 27 October 2023
- Dyer-Witheford, N. (2015). *Cyber-Proletariat: Global Labour in the Digital Vortex*. Pluto Press.
- Eapen, T.T., Finkenstadt, D.J., Folks, J., & Venkataswamy, L. (2023). How Generative AI Can Augment Human Creativity: Use it to promote divergent thinking. *Harvard Business Review: AI and Machine Learning*. <https://hbr.org/2023/07/how-generative-ai-can-augment-human-creativity>. Accessed 27 October 2023
- French, K. B., Sanchez, A., & Ullom, E. (2020). Composting settler colonial distortions: Cultivating critical land-based family history. *Genealogy*. <https://doi.org/10.3390/genealogy4030084>
- Galway, L. P., Beery, T., Jones-Casey, K., & Tasala, K. (2019). Mapping the solastalgia literature: A scoping review study. *International Journal of Environmental Research and Public Health*, 16(15), 2662. <https://doi.org/10.3390/ijerph16152662>
- Goodlad, L. M. E. (2023). Editor's Introduction: Humanities in the Loop. *Critical AI*. <https://doi.org/10.1215/2834703X-10734016>
- Google DeepMind. (2023). AI Safety Summit: An update on our approach to safety and responsibility. <https://deepmind.google/public-policy/ai-summit-policies/>. Accessed 27 October 2023
- Government of Canada. (2023). The Artificial Intelligence and Data Act (AIDA)—Companion document. <https://isde-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act-aida-companion-document>. Accessed 21 December 2023
- GTDF. (n.d.). Gesturing towards decolonial futures. <https://decolonialfutures.net/>. Accessed 27 October 2023
- HAI. (2023). THE AI INDEX REPORT: Measuring trends in Artificial Intelligence. <https://aiindex.stanford.edu/report/>. Accessed 21 December 2023
- Haiven, M. (2019). Questions upon reading Abolitionist University Studies: An Invitation. Abolition University. <https://abolition.university/2019/10/08/max-haiven/>. Accessed 27 October 2023
- Hall, R. (2021). *The Hopeless University: Intellectual Work at the end of The End of History*. MayFly Books.
- Hamilton, J. M., & Neimanis, A. (2018). Composting feminisms and environmental humanities. *Environmental Humanities*, 10(2), 501–527. <https://doi.org/10.1215/22011919-7156859>
- Hamilton, L., Daniels, H., Smith, C., & Eaton, C. (2022). The Private Side of Public Universities: Third-party providers and platform capitalism. UC Berkeley: Center for Studies in Higher Education. <https://escholarship.org/uc/item/7p0114s8>. Accessed 27 October 2023
- Hancock, B., Shaninger, B., and Yee, L. (2023). Generative AI and the future of HR. McKinsey & Company. <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/generative-ai-and-the-future-of-hr>. Accessed 27 October 2023
- Hardt, M., & Negri, A. (2000). *Empire*. Harvard University Press.
- Hegel, G.W.F. (1942). *Philosophy of Right* (Ed. & transl. by T.M. Knox). Clarendon Press.
- HM Government. (2023). AI Safety Summit 2023. <https://www.gov.uk/government/topical-events/ai-safety-summit-2023>. Accessed 21 December 2023
- Hoofd, I. (2017). *Higher Education and Technological Acceleration: The Disintegration of University Teaching and Research*. Palgrave Macmillan.
- Hooks, B. (2003). *Teaching Community: A Pedagogy of Hope*. Routledge.
- Houlden, S., & Veletsianos, G. (2022). Impossible dreaming: On speculative education fiction and hopeful learning futures. *Postdigital Science and Education*. <https://doi.org/10.1007/s42438-022-00348-7>
- Hudson, W. (1982). *The Marxist Philosophy of Ernst Bloch*. St. Martin's Press.
- Indigenous AI. (2020). Position Paper. <https://www.indigenous-ai.net/position-paper/>. Accessed 21 December 2023
- Jung, C. G. (1953). *Collected works Psychology and alchemy*. Pantheon Books.
- Kelley, R. (2002). *Freedom Dreams: The black radical imagination*. Beacon Press.

- Khalil, M., Prinsloo, P., & Slade, S. (2023). Fairness, trust, transparency, equity, and responsibility in learning analytics. *Journal of Learning Analytics*, 10(1), 1–7. <https://doi.org/10.18608/jla.2023.7983>
- Kinsman, G., & Gentile, P. (2010). *The Canadian War on Queers: National Security as Sexual Regulation*. UBC Press.
- Kite, S. (2020). How to Build Anything Ethically: Suzanne Kite in discussion with Corey Stover, Melita Stover Janis, and Scott Benesinaabandan. In J.E. Lewis (Ed.), *Indigenous Protocol and Artificial Intelligence Position Paper* (pp. 75–84) The Initiative for Indigenous Futures and the Canadian Institute for Advanced Research (CIFAR). <https://doi.org/10.11573/spectrum.library.concordia.ca.00986506>
- Lenin, V.I. (1981). Philosophical Notebooks, in *Lenin Collected Works*, 38. Progress Press.
- Lewis, J.E. (Ed., 2020). *Indigenous Protocol and Artificial Intelligence Position Paper*. The Initiative for Indigenous Futures and the Canadian Institute for Advanced Research (CIFAR). <https://doi.org/10.11573/spectrum.library.concordia.ca.00986506>
- Lodge, J. M., Yang, S., Furze, L., & Dawson, P. (2023). It's not like a calculator, so what is the relationship between learners and generative artificial intelligence? *Learning Research and Practice*, 9(2), 117–124. <https://doi.org/10.1080/23735082.2023.2261106>
- Luxemburg, R. (1918). The Socialisation of Society (December 1918). Marxists Internet Archive. <https://www.marxists.org/archive/luxemburg/1918/12/20.htm>. Accessed 27 October 2023
- Malm, A., & Collective, T. Z. (2021). *White skin, black fuel: On the danger of fossil fascism*. Verso Books.
- Marcos, S. (2002). *Our word is our weapon: Selected writings*. Serpent's Tail.
- Marx, K. (1843). Letter from Marx to Arnold Ruge. In Dresden. Marxists Internet Archive. [https://www.marxists.org/archive/marx/works/1843/letters/43\\_09-alt.htm](https://www.marxists.org/archive/marx/works/1843/letters/43_09-alt.htm). Accessed 27 October 2023
- Marx, K. (1857/1993). *Grundrisse: Outline of the Critique of Political Economy*. Penguin.
- Marx, K. (1867/2004). *Capital, Volume 1: A Critique of Political Economy*. Penguin.
- Marx, K. (1875/1970). Critique of the Gotha Programme, in *Marx and Engels Selected Works*, 3, pp. 13–30. Progress Publishers.
- Marx, K. (1894/1991). *Capital, Volume 3: A Critique of Political Economy*. Penguin.
- Marx, K., & Engels, F. (1846). *The German Ideology: including Theses on Feuerbach and Introduction to the Critique of Political Economy*. Prometheus.
- Mataira, P. J. (2019). Transforming Indigenous research: Collaborative responses to historical research tensions. *International Review of Education*, 65(1), 143–161. <https://doi.org/10.1007/s11159-019-09766-5>
- Mbembe, A. (2019). *Necropolitics*. Duke University Press.
- Mbembe, A. (2021). *Out of the Dark Night: Essays on Decolonization*. Columbia University Press.
- McLean, K. C., Delker, B. C., Dunlop, W. L., Salton, R., & Syed, M. (2020). Redemptive stories and those who tell them are preferred in the U.S. *Collabra Psychology*, 6(1), 39. <https://doi.org/10.1525/collabra.369>
- McLean, K. C., Lilgendahl, J. P., Fordham, C., Alpert, E., Marsden, E., Szymanowski, K., & McAdams, D. P. (2018). Identity development in cultural context: The role of deviating from master narratives. *Journal of Personality*, 86(4), 631–651. <https://doi.org/10.1111/jopy.12341>
- McLean, K. C., & Syed, M. (2016). Personal, master, and alternative narratives: An integrative framework for understanding identity development in context. *Human Development*, 58(6), 318–349. <https://doi.org/10.1159/000445817>
- Mikahere-Hall, A. (2017). Constructing research from an indigenous Kaupapa Māori perspective: An example of decolonising research. *Psychotherapy and Politics International*, 15, e1428. <https://doi.org/10.1002/ppi.1428>
- Miller Medina, J.E. (2005). The State Machine: politics, ideology, and computation in Chile, 1964–1973. Unpub PhD Thesis. Massachusetts Institute of Technology. <https://dspace.mit.edu/handle/1721.1/39176>. Accessed 27 October 2023
- Moore, J. (2015). *Capitalism in the Web of Life: Ecology and the accumulation of capital*. Verso.
- Nataschia, L. (2012). Remembering the Queer Liberation Movement's Radical Roots. Halifax Media Co-op. <http://halifax.mediacoop.ca>. Accessed 27 October 2023
- NHS England. (2023). Workforce archetypes. In NHS England. Developing healthcare workers' confidence in artificial intelligence (AI) (Part 2). <https://digital-transformation.hee.nhs.uk/building-a-digital-workforce/dart-ed/horizon-scanning/developing-healthcare-workers-confidence-in-ai/chapter-2-workforce-archetypes/defining-the-archetypes>. Accessed 27 October 2023
- O'Brien, M. E. (2023). *Family abolition: Capitalism and the communizing of care*. Pluto Press.
- Peters, M. A. (2012). Bio-informational capitalism. *Thesis Eleven*, 110(1), 98–111. <https://doi.org/10.1177/0725513612444562>
- Peters, M. A., & Jandrić, P. (2019). AI, human evolution, and the speed of learning. In J. Knox, Y. Wang, & M. Gallagher (Eds.), *Artificial Intelligence and Inclusive Education: Speculative futures and emerging practices* (pp. 195–206). Springer Nature. [https://doi.org/10.1007/978-981-13-8161-4\\_12](https://doi.org/10.1007/978-981-13-8161-4_12)
- Phillips, L., & Rozworski, M. (2019). *The People's Republic of Walmart: How the World's Biggest Corporations are Laying the Foundation for Socialism*. Verso.
- Prinsloo, P., Slade, S., & Khalil, M. (2023). Multimodal learning analytics—In-between student privacy and encroachment: A systematic review. *British Journal of Educational Technology*, 54, 1566–1586. <https://doi.org/10.1111/bjet.13373>
- Pun, N., Andrijasevic, R., & Sacchetto, D. (2020). Transgressing North-South Divide: Foxconn Production Regimes in China and the Czech Republic. *Critical Sociology*, 46(2), 307–322. <https://doi.org/10.1177/0896920518823881>
- Roberts, M. (2023). Polycrisis again. The Next Recession. <https://thenextrecession.wordpress.com/2023/10/08/polycrisis-again/>. Accessed 27 October 2023
- Saglam, K. (2022). The digital blender: Conceptualizing the political economic nexus of digital technologies and authoritarian practices. *Globalizations*. <https://doi.org/10.1080/14747731.2022.2131235>
- Saito, K. (2017). *Karl Marx's Ecosocialism: Capital, nature, and the unfinished critique of political economy*. Monthly Review Press.
- Savin-Baden, M. (2021). What are postdigital humans? In M. Savin-Baden (Ed.), *Postdigital humans: Transitions, transformations and transcendence* (pp. 3–15). Springer Nature.
- Sharples, M. (2023). Towards social generative AI for education: Theory, practices and ethics. *Learning Research and Practice*, 9(2), 159–167. <https://doi.org/10.1080/23735082.2023.2261131>

- SRC. (2021). The nine planetary boundaries. <https://www.stockholmresilience.org/research/planetary-boundaries/the-nine-planetary-boundaries.html>. Accessed 27 October 2023
- Szadkowski, K. (2019). The common in higher education: A conceptual approach. *Higher Education*, 78, 241–255. <https://doi.org/10.1007/s10734-018-0340-4>
- The Elders. (2023). The Elders urge global co-operation to manage risks and share benefits of AI. <https://theelders.org/news/elders-urge-global-co-operation-manage-risks-and-share-benefits-ai>. Accessed 21 December 2023
- Thompson, P., & Žižek, S. (Eds.). (2013). *The Privatization of Hope: Ernst Bloch and the Future of Utopia*. Duke University Press.
- Tobin, J. (2023). Artificial intelligence: Development, risks and regulation. The House of Lords Library. <https://lordslibrary.parliament.uk/artificial-intelligence-development-risks-and-regulation/>. Accessed 21 December 2023
- Tokumitsu, M. (2014). In the name of love. *Jacobin*, 13. <https://www.jacobinmag.com/2014/01/in-the-name-of-love/>. Accessed 27 October 2023
- Tuck, E. (2018). *I do not want to haunt you but I will: Indigenous feminist theorizing on reluctant theories of change*. University of Alberta, Faculty of Arts.
- Veletsianos, G. (2023). Generative Artificial Intelligence in Canadian Post-Secondary Education: AI Policies, Possibilities, Realities, and Futures. 2023 Special Topics Report. Canadian Digital Learning Research Association. <https://www.cd2l.com/resources/assets/cdlra-2023-ai-report/>. Accessed 27 October 2023
- Walker, M., Fredericks, B., Mills, K., & Anderson, D. (2014). “Yarning” as a Method for Community-Based Health Research With Indigenous Women: The Indigenous Women’s Wellness Research Program. *Health Care for Women International*, 35(10), 1216–1226. <https://doi.org/10.1080/07399332.2013.815754>
- Ware, F., Breheny, M., & Forster, M. (2018). Kaupapa Kōrero: a Māori cultural approach to narrative inquiry. *AlterNative an International Journal of Indigenous Peoples*, 14(1), 45–53. <https://doi.org/10.1177/1177180117744810>
- Wending, A. (2009). *Karl Marx on Technology and Alienation*. Palgrave Macmillan.
- Widder, D. G., West, S., & Whittaker, M. (2023). Open (For Business): Big Tech, Concentrated Power, and the Political Economy of Open AI. *Concentrated Power, and the Political Economy of Open AI*. <https://doi.org/10.2139/ssrn.4543807>
- Wilson Gilmore, R. (2023). *Abolition geography: essays towards liberation*. Verso.
- Yazzie Burkhart, D. (2004). What coyote and thales can teach us: An outline of American Indian Epistemology. In A. Waters (Ed.), *American Indian Thought: Philosophical Essays* (pp. 15–26). Blackwell Publishing.

## Publisher’s Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.