

Beyond the WEIRD education system in the age of AI

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Abstract In this article, we aim to contribute to the ongoing debate on reimagining education systems, their content and underpinning values in the age of Artificial Intelligence (AI). Indeed, twenty-first century education is being transformed into a global network (Dede & Richards, 2020), with new constellations already emerging (Phipps, 2019). From the outset, we analyse the omnipresence of the ‘western’ European tradition across the education systems globally (Bhambra et al., 2018; de Sousa Santos, 2014; Smith, 2012; Mignolo, 2011; Fanon, 2001; wa Thiong’o, 1986; 1969), and its incongruity with the knowledge and values needed for sustainable coexistence in the cyber-physical (hybrid) reality of natural life and AI. To do so, we refer to the work of Henrich et al. (2010, p 29) appearing in *Nature*, where the authors coined the acronymic pun, ‘WEIRD’, to highlight the education system’s ‘western, educated, industrialised, rich and democratic’ origins and ties. We not only use it but also propose to extend it by adding an additional letter, ‘O’, to ‘WEIRDO’ to underline the systems’ growing *obsolescent* content and values. We propose to reach beyond this WEIRD-ness, shifting the debate from ‘western’ eurocentrism and decolonisation into wider post-discriminatory and ethically committed approaches and practices, such as SEEDS: *smart educational ecosystems of dependence and support*. Underlining a gradual

emergence of de-centralised and proactive initiatives, SEEDS focus on the ‘*motion out of the notion of inclusivity into the concept of embracing*’ (Tordzro, 2019a; 2019b; Tordzro, 2018; 2016; Kumordzi et al., 2016), constituting a set of signposts aimed at reconfiguration of the current epistemological, methodological and axiological disbalances into ones directed at harmonious co-existence and loving kindness. SEEDS is consonant with the recent reports of the European Commission (2022, online), emphasising the ‘triple imperative to protect, prepare and transform’, and UNESCO (2021) urging for a new social contract for education in the face of current dangers to humanity and planet Earth. Examples of such educational outlooks already exist, including Ubuntu (Caraccioli & Mungai, 2009), Adinkra (Tordzro, 2019a; 2019b), Afa (Kumordzi et al., 2016), Moana (Hendry & Fitznor, 2012), Hawaiian and Pacific (Herman, 2014), and the First Nations of the American (Pacari, 1996; Deloria, 1970) and Australian continents, each going beyond the WEIRD education system in the age of AI.

Introduction

Artificial intelligence’s (AI) mimicry of human behaviour has led it to be described as ‘the most human of technologies’ (Fan & Taylor, 2019, p 8). Indeed, AI has established itself as capable of surpassing human intelligence in various domains, with the seminal conquering of Go being AI’s most preeminent achievement to date. It should be noted that the scope of AI is now understood beyond the human mind and applies to any knowledge domain where a machine displays rationality and acts rationally (Russell & Norvig, 2021). Yet, rationality and the human heart occupy entirely different realms. One should, therefore, carefully heed the warnings of leading AI researchers like Kai-Fu Lee (2018, p 231), who saw beyond these rational limits of AI, stated in his

research that ‘instead of seeking to outperform the human brain, I should have sought to understand the human heart’. The possibility that AI might be used to reproduce or create knowledge and cultural hegemony in the same manner that colonial legacies permeate education systems globally today is worthy of serious consideration. A necessary first step in this regard requires an in-depth examination of the epistemological underpinnings of the current education system so that we might not inadvertently replicate previous hegemonies or create new ones in the age of AI.

WEIRD epistemology of education

The ‘western’ Eurocentric epistemology of the education system, its knowledge, content and values, is a vague yet multifaceted construct. Its core meaning, according to Henrich et al. (2010, p 29), might be encoded in the already mentioned playful acronymic pun ‘WEIRD’, emphasising the ‘western, educated, industrialised, rich and democratic’ heritage (see also: Colares da Mota Neto & Santana de Lima, 2020). The *weirdness* and unusualness of this epistemological approach should not be underestimated, particularly in the context of emerging multilingual, multicultural and globalising education environments, with the potential to be enhanced by AI through delivering personalised learning and teaching (Akgun & Greenhow, 2022). Indeed, the ‘western’ reference is especially noteworthy, as it locates the geographical origins of knowledge and values in education and emphasises western socio-cultural structures globally (Wrey, 2014). According to Dussel (1993, p 71), the concept dates to the Hegelian tradition of the ‘heart of Europe’. This notion generally includes ‘Germany, France, Denmark and the Scandinavian countries’ but centres on ‘England and Germany’ (Dussel, 1993, p 73). The author underlines that out of such a ‘western’ construct of the

European continent emerges the 'other' Europe, consisting of 'Poland and Russia' and the central, eastern and southern parts of the continent (Dussel, 1993, p 73). This distinction between the 'west and the rest' within the European context is of paramount importance, as it has largely marginalised the 'other' Europeans' voices and identities for centuries now (Uflewski, 2018; see also: Smith, 2012).

The 'educated', 'industrialised', 'rich', and 'democratic' aspects of the WEIRD epistemology tend to be linked with the modern world-systems' conceptualisations (Wallerstein, 1979; 1974; see also: Hobson, 2012). Although distinct, as Mignolo (2002) emphasised, these concepts are strongly interrelated through certain ideas and practices, particularly the notion of capitalism. According to Dussel (1995), capitalism masks the 'western' epistemological violence in knowledge production, economic exploitation and actual genocides of the 'others'. Indeed, describing the process, Dussel (1995, p 75) emphasises that

'the modern [western European] civilization became to understand itself [through its education system] as the most developed, the superior, civilization. This sense of superiority obliges it, in the form of a categorical imperative, as it were, to *develop* (civilise, uplift, educate) the more primitive, barbarous, underdeveloped civilisations. The path of such development should be that followed by [western] Europe in its own development out of antiquity and the Middle Ages, where the barbarians, or the primitive, oppose the civilising process, the praxis of modernity must, in the last instance, have recourse to the violence necessary to remove the obstacles to modernization'.

In particular, Dussel (1993, p 73), reflecting on the Hegelian tradition, emphasises the role of the ‘English and German’ (the Anglo-Saxon; often synonymous with the ‘British’, which is not) power construct, as each nation assumes the ‘absolute right as the bearer of the [Hegelian] Spirit in its moment of development’, with ‘the spirit of other peoples having no rights’. In other words, as Richardson (2018, p 236) observes, the idea of ‘non-western inferiority’ justifies the discrimination and the use of violence, including the epistemological one, towards any form of ‘otherness’ that contradicts the WEIRD.

The implications of the WEIRD epistemology for education are vast. This includes the work of Deloria (1970, p 19), a distinguished Great Sioux Nation scholar, who emphasises the use of it as the ‘Western tendency to silence all the voices of others’. Contemporary to Deloria, Fanon (2001; 1986) additionally highlights applications of tactics, such as racism and xenophobia, interwoven throughout the education systems, to control and maintain discriminatory social relations as ‘natural’. Fanon (2001; 1986) extensively documents the systemic internationalisation of these practices through subjugation and imposition of inferiority towards colonised identities, aiming at the emulation of the views of the oppressors. His observations are consonant with the work of wa Thiong’o (1986; 1969). This Kenyan novelist and critic of the WEIRD epistemology of education, wa Thiong’o (1986; 1969), underlines the omnipresence of this discriminatory approach in learning and teaching across the African continent, resulting in the undervaluing of local cultures, languages, histories, geographies, religions, arts and traditions, to the point that they are rejected by the local populations, who then choose to emulate instead the discriminatory knowledge and values

imposed by the (praxis of) colonial oppressors (see also: Foucault, 2002).

Indeed, recognising the colonisation encoded and seeded within education, its WEIRD-ness, and unusualness remains important. According to Loomba (2005, p 3), approximately '84.6 per cent of the land surface of the globe' has been affected by the 'western' European colonial knowledge and values. This constitutes, as noted by Loomba (2005, p 3; see also: Mignolo, 2011), 'by far the most extensive colonial [knowledge and values] domination in human history' and is reflected in the content of education systems across the Americas, Australia, Asia, Africa, as well as in Europe up to this day. Loomba (2005, p 50) argues that the 'the growth of modern western knowledge system and backgrounds of all "disciplines" has been embedded within and shaped by' the discriminating and undervaluing of non-western ideas, making the world 'an extension of the west' and assuring the reproduction of WEIRD epistemology 'by the West for the West' (Bhabra et al., 2018, p 5; wa Thiong'o, 1986; 1969).

WEIRDO education system

The education system exists in part, at least in theory, to provide a framework to understand the surrounding world and to empower those within it to advance it (Fadel et al., 2015). It also shapes and sets peoples' identities and how they relate to each other and the planet, setting the discourse within which all ideas about themselves and others are presented and exchanged (Wray, 2014). It acts through a learning process, the latter described by Tegmark (2018), an MIT professor of physics and a president of the *Future Life Institute*, through an allegory of acquiring software after birth. Reflecting on this process within a machine learning context, Tegmark (2018)

highlights the importance of collecting information about the nearby environment to decide how to *act* back, *re-act* and *inter-act*. Tegmark (2018) emphasises that by applying reinforcement learning, an idea inspired by behaviourist psychology (see also: Skinner, 1953 on operant conditioning), AI already guides and modifies human behaviour. The danger exists that such technological capabilities could reproduce or create hegemonic education systems through neo-colonial and discriminatory corporate and state-sponsored acts rather than making them obsolescent.

Indeed, 'obsolescent' is also the last of the characteristics we felt inspired to include in Henrich et al. (2010)'s famous acronymic pun WEIRD, adopting WEIRDO to capture the current education system's obsolescent unethical and unsustainable content. Originating over a century ago, the WEIRD education system emerged as a tool to re-train (*re-act*) predominantly agrarian societies to fit into the new industrial reality of the first three Industrial Revolutions (Bhrambra et al., 2018; Soysal & Strang, 1989). Those three eras of unprecedented technological progress, occurring at breakneck speed, resulted in the unparalleled geographical movement of people, including the 'Age of Migration', as Castles et al. (2014) refer to it, progressively interweaving disparate local cultures and structures across the globe.

Influenced by the most advanced organisational model of those times, namely the factory, the emerging education systems were designed to address these changes and to mass-produce socially conditioned docile workers and obedient citizens equipped with enough literacy skills, values and attitudes necessary for developing susceptibility in undertaking employment often torn of dignity and care (Mokyr, 2001). According to Toffler (1981, p 43; 1971), the system was envisioned for a 'brutally

repetitious factory and office' working life, 'in which time is to be regulated not by the cycle of sun and moon but by the clock' (see also: Robinson & Aronica, 2016; 2015; 2010; Craft, 2011; Craft et al. 2001). Describing the system, Bowles and Gintis (1976, p 151, citing Adams, 1880) point to its industrial qualities, including 'huge, mechanical machines, so organised, as to combine the principal characteristics of the cotton mill, the railroad, with those of the model state prison' (see also: Cubberley, 1919). And as within a prison, the obedience within that education system was and has been ever since, assured, according to Gatto (2010, p 60), by

'industrial bureaucracy and permanent discipline: a set of strict rules and laws demanding compliance and squelching creativity for a promise of a degree for learners, while for teachers and academics, as in hamburger-flipping industry, the pay-check is the decisive ingredient. (...) We all have to eat'.

That education system was also set to pre-adapt for segregation, including that based on age, but also on race, ethnicity, gender and social class (Fanon, 2001; 1986; wa Thiong'o, 1986; 1969) to fit into the norms expected within the industry (Robinson & Aronica, 2016; 2015; 2010; see also: Toffler, 1981; Gatto, 2010). The age-based discrimination, especially in higher and lifelong education, has been primarily unchallenged to this day, with examples including students' sub-classification of the *adult*, meaning *the other learner*. This explicit age-based students' segregation in higher and lifelong education is particularly troubling, as all participants of the tertiary education system are considered 'adults' according to both the socio-psychological and legal interpretations. Addressing the issue, Tuckett (c.f. Wilby, 2014), a former chief executive of the UK-wide Institute of Adult Learning

and Continuing Education, explains that the concept of an 'adult' in education was created at the beginning of the twentieth century to assist the economically deprived members of the public in gaining relevant literacy skills. Therefore, the concept of 'adult education' was addressed to a certain type of 'other adults'. In the context of the early twentieth century UK, this included former soldiers, women and widows, former slaves of colonies, the Scots, Welsh, Irish, and 'other' Europeans, also known as 'migrants' (as opposed to the western and colonial 'expat', Uflewski, 2018), all of the patchy educational stories, 'funny' names, accents, pronunciations, skin, eye and hair colours, grouped under the disguise of an 'adult' learner (Wilby, 2014; see also: Crenshaw, 1991; 1989; Collins, 2015; 1998; 1990; 1986 on simultaneous multiple forms of discrimination). According to Chen (2017), the continuous presence of the ongoing segregation of 'other' learners/ 'adult' students in higher and lifelong education profoundly affects their psychological wellbeing, educational belongingness, learning confidence, self-worth, social perception, as well as prevents these students from a full engagement with the learning processes (see also: Cooley, 2005; Mead, 1967; Goffman, 1990; 1959; Tajfel, 1974; Tajfel & Turner, 1979; Dodgson, 2017).

Counterhegemonic perspectives on WEIRD inclusion

Interestingly, the inclusion of the 'other' has been at the centre of debates in education for a few decades now, with the development of non-traditional and critical pedagogies, curricula and leadership policies being some of the most actively explored pathways to change the status quo. Gale et al. (2017) point to two bodies of literature illustrating this process, differentiating between the (1) inclusion and embedding of the 'other' into the contemporary education system(s) and (2) creation of the

‘southern theory’ in education that replaces the colonial epistemological tradition. Analysing implications of both aspects, the authors refer to the work of Dei (2008) and Connell (2007), emphasising the existing imbalance of power in knowledge production through a metaphor of the metropole centre of knowledge, and relatively voiceless peripheries (Gale et al., 2017). Citing Connell (2007, p viii-ix), the authors underline the significance of the specific type of ‘relations, such as authority, exclusion and inclusion, hegemony, partnership, sponsorship, appropriation between the intellectuals and institutions in the metropole and those in the world periphery’ that still tend to characterise the education systems globally (Gale et al., 2017, p15, see also: Ainscow, 2016).

The first approach, centred on including and embedding the ‘other’ within the WEIRD knowledge production, constitutes the basis of inclusive education scholarship. Defined as a set of ‘distinct normative beliefs about the purpose, content and organisation of education’, it acknowledges the structural power imbalance in the design and delivery of education due to ‘diverse systems of values’ (Magnússon, 2019, p 70). It is rooted in learner-centred pedagogies (Schweisfurth, 2015a; 2015b; 2013) that aim to place the learners in a position of seemingly active control over the content and delivery of knowledge for positive progressive and democratic outcomes (Dewey, 1963; 1916; Freire, 1996) through problem-based learning and constructivism (Vygotsky, 1978). In particular, arts-based pedagogies have been actively explored to enhance this inclusivity in education, especially within cross-cultural and multilingual education settings (Phipps, 2010). These include the role of music as a tool for cross-community engagement and community-based multicultural communication (Tordzro, 2019; Tordzro & Phipps, 2016; Odena, 2018). Other art-based, non-verbal

pedagogies, such as wordless narratives, explore using pictures and drawings (Arizpe et al., 2015). Calling them a space for soul expression, Arizpe et al. (2015) urge to give the non-verbal means of multicultural and multilingual communication more prominence for achieving a more power-balanced multicultural, inclusive education (see also: hooks, 2015; 2003; Frimberger, 2017 on importance of performative approaches to address experiences of epistemological violence, cultural and linguistic exclusion; Phipps et al., 2020). These inclusive and critical frameworks in education have been supported by developments in educational leadership, with Dimmock (2020) emphasising an emergence of a novel phenomenon aimed at global knowledge construction. Highlighting the field's major challenges in developing an inclusive paradigm that encompasses the diversity of international policies and perspectives in education, Dimmock (2020) underlines the significant obstacles plaguing the aim, including the ongoing cultural disjunctions, limited cross-cultural connectivity and often minimal awareness of local (peripheral) educational embeddedness by the leading metropole. Nevertheless, despite their progressive and democratic underpinnings, these approaches often interpret inclusion as a mere add-on to the established knowledge structures (Gale et al. 2017).

The second approach to counter-narrate the WEIRD hegemony is based on decolonisation and the subsequent creation of the 'southern theory' that replaces the colonial epistemological tradition in education. According to Bhrambra et al. (2018), the decolonisation of education is needed, including its structures, curricula, pedagogies and research methods. This is consonant with Smith (2012), who, while arguing from the point of the discriminated, highlights the alienating and disconnecting experiences of such education and research, particularly when considering the needs of local (peripheral)

communities. Among many, Smith (2012) emphasises that the current metropole-hegemony-centred education tends to provide only one way out of local (peripheral) communities, draining them of their much-needed talent and preventing thriving. However, it must be highlighted that the decolonial stances, necessary as they are, are not devoid of exclusivity and its concomitant discrimination practices, as both originated in the Kantian and Marxist philosophies. Not recognising the limitations of such metropole-periphery power relations traps the educational discourse within the hegemonic duality of 'rest vs the west' and 'us vs them' (Mignolo, 2011).

2020 digital shock

Although not new, these bubbling tensions in the design, delivery and conceptualisation of education have especially come to the surface during the global shutdown due to the SARS-Cov-2 (Covid-19) pandemic of 2020-2022. Similarly, the digitalisation of services, including education, has been ongoing for decades (Schmidt & Cohen, 2013). Yet, the 2020 digital shock brought structural changes of 'biblical proportions (...) dissolving the world as we know it' (Schwab & Malleret, 2020: 12; see also: Schwab & Malleret, 2021). Characterised by unprecedented complexity, velocity, scope and impact, interconnecting physical, biological and virtual aspects, this digital shock altered the structures of societies globally at an exponential rate. Indeed, according to Check Point Software Security Report (2021), the pandemic accelerated digitalisation across the service and education sectors such that previous decades of change occurred in the year 2020 alone. The rapid mushrooming of smart cities and smart nations looms on the near horizon, with the speed and sheer scale of changes ahead having no historical precedent.

The implications of this digital revolution are still to be identified and assessed. At first glance, the impact has ‘dramatically exacerbated pre-existing dangers that we have failed to confront adequately before’ (Schwab & Malleret, 2020, p 15). In this context, education systems, and their underpinning WEIRD values, are still barely considered and get limited recognition. Approximately a century ago, Pressey (1924, c.f. Petrina 2004, p 305) noted that ‘there must be an industrial revolution in Education’, to radically reorganise understanding, content and method and ‘to modernize the inefficient and clumsy procedures of conventional education’. AI is being actively applied with this goal in mind, yet the extent to which this occurs through the lens of WEIRD colonial attitudes and values is unclear. The role and impact of AI applications such as face and emotion-detection software and algorithms for mass surveillance and social credit scores (Wakefield, 2021) also raise concerns. Emphasising these alarming trends, the European Commission Report (Breque et al., 2021) urges for recognition of ‘societal goals beyond technological efficiency’ as the key to developing new service models, including education, of multilocal, multicultural and multilingual characteristics (see also: OECD Report on the *Future of Education*, 2018). According to UNESCO (2021, online):

‘Without consensus around a normative vision for education in post-pandemic economy and society, the fundamental innovation in content and delivery has remained limited. Clearly defining quality learning in the Fourth Industrial Revolution is thus an important first step in setting the direction of innovation in education and reviving it as a pathway to social mobility and inclusion in the future’.

Dede and Richards (2020) responded to this vision by proposing the 60-year curriculum as a new conceptualisation of the process of education, shifting its understanding from the one-off experience into a life-long venture characterised by the multiplicity of equally valid entries and exits, enabling adaptation to the quickly evolving job market. In particular, the authors highlight the aspect of *unlearning*, that they insist on becoming as significant as the learning itself (Dede & Richards, 2020). The impact of AI on education has also been recognised by Jemielniak and Przegalińska (2020), who emphasise the role of technology-mediated group cooperation in creating a more equitable economy. This is an important area of study, with Lund et al. (2021, p 1) emphasising its growing significance in light of post-Covid-19 trends, including remote work and virtual interactions, e-commerce, digital, digital transactions and deployment of automation and AI'. Yet, technology-enhanced collaborative societies have already been vastly studied, including the network society (Castells, 1996; 2001), transnationalism (Basch et al., 1994; Smith & Guarnizo, 1998; Vertovec, 2010; 2008; see also: Glick-Shiller et al., 1992), superdiversity (Vertovec, 2019; 2017; 2007), and the 'CODE' approaches addressing collaborative ownership within the digital industry (Ghosh, 2005). In this context, the technology-enhanced ways of collaboration, as Fadel et al. (2015) insist, are neither a solution nor an end in itself but rather a set of tools to improve the speed and scale of cooperation and business as usual.

Hence, merely letting loose the unprecedented scale and the speed of AI-enhanced cooperation within the rarely challenged WEIRD hegemonic praxis may result in an unparalleled replication of discriminatory outcomes, reproduced at scale and speed unmet before (see also: Curtis et al., 2022). Tordzro (c.f. Tordzro & Ndeke, 2020,

p190) alludes to aspects of this in his poem, *Motion From The Notion*

[...]
We have been included
Yet we are not embraced
[...]
We have been invited
Yet not welcomed
[...]
Where food is wasted
Abundances in dichotomy
With Scarcity
We are in motion from a notion
Of inclusivity into embracing us
We are unstuck
Beware!

In his work, Tordzro (c.f. Tordzro & Ndeke, 2020) acknowledges the existence of the ‘*self-replication*’ of degeneration. AI algorithms have the potential to supercharge this by enabling a rapid reproduction of hegemony and re-emergence of neo-colonial values and attitudes, reflected in discriminatory and silencing practices on a mass scale worldwide. Hence, reimagining education beyond the WEIRD paradigm in the form of constellations of harmonious co-existence and loving kindness ecosystems is a crucial step towards developing counter-hegemonic praxis for education in the age of AI.

Harmonious co-existence and loving kindness

Berberich et al. (2020) promote embraced and harmonious co-existence with oneself, others and the natural environment. This is consonant with recent reports by the European Commission (2022), emphasising humanity’s triple imperative to protect, prepare and transform, and

the UNESCO (2021) report urging a new social contract for education in the face of danger to humanity and the planet Earth. Inspired by this, we propose *smart educational ecosystems of dependence and support* (SEEDS) to encode complex networks of knowledges and value systems for peaceful and harmonious planetary coexistence. The need for this kind of approach has been emphasised by many, including the American Association of Colleges and Universities (Nair & Henning, 2017, online), highlighting the necessity to ‘critically engage with complex, interdependent global systems and legacies and their implications for people’s lives and the [E]arth’s sustainability’. The planetary harmonious outlook has also been highlighted throughout the work of Mazzucato (2018, p 806; 2016), underlining the much-needed redirection from a human-centric perspective to create a ‘fundamental knowledge about the nature and behaviour of living systems’. Quoting the US national agencies’ strategic missions, including that of NASA, Mazzucato (2018, p 806) underlines their focus on ‘the need to drive advances in science, technology (...) to enhance (...) stewardship of Earth’. In this context, it is worth noting that the knowledge and traditions of the First Nations of the Americas and Australia, as well as across Africa, embrace harmonious co-existence and planetary outlook within the structurally complete and holistic manner of their traditional way of life. Indeed, the Hawaii and Pacific Islanders embrace the need for ‘*Malama* – Taking Care’, in particular, of ‘*Malama Honua* – taking care of the Earth’, through the ‘*Ike* – Knowledge, *Po’okela* – the Pursuit of Excellence, *Kuleana* – Rights and Responsibilities’, and especially, ‘*Pono* – Acting in a Balanced [sustainable] Way’, through ‘*Aloha* – the Loving Kindness’ (c.f. Herman, 2014, online).

Other aspects, such as ethics, fairness and mutual recognition and respect, are highlighted within the

knowledge systems of First Nations of South America, including the concept of *Pacta-Pacta*, denoting a collective democracy, active participation and ethical relationship-building among the equals (Pacari, c.f. Mignolo 2011). According to Pacari (c.f. Mignolo, 2011, p 334, see also: Pacari, 1996), a Quechua lawyer, politician, and a judge of the Constitutional Court of Ecuador, this act of ‘recognition and equal embracement of the cultural codes of [all] nations’ political and economic philosophies that guide local livings, thoughts, and aims is of critical importance to carry the epistemic freedom’ (c.f. Mignolo, 2011, p 335). These concepts are also interwoven in the already-cited work of Mazzucato (2018, 2016). A London-based UCL professor of innovation economics and public value, Mazzucato (2018, p 3), coined the term *meaningful innovation*, being ‘the combination of the need for embracing the sustainable directions from above while enabling the [free] bottom-up creativity and learning’. Mazzucato (2018; 2016; 2011) challenges the ‘customer’s preference’ organisation of the value and worth systems globally, emphasising that apart from the rate, the economic growth is also characterised by the *direction dimension*, which according to Mazzucato (2018; 2016; 2011) is greater than the economic profit. The latter example has been famously explained by Jobs (1997, online) at his annual Apple Worldwide Developers Conference, stating: ‘you’ve got to start with the customer experience, and work back to the technology – not the other way around’. Two decades later, Mazzucato (2018) challenges Jobs’ (1997) profit-driven customer approach, insisting that the economic strategies must point towards harmonious embracing and sustainable directions and work back emerging technologies for these directions, not the other way around.

Her calls echo the values embedded within ‘On [social] Liberty’ by Mill, co-written with his lifelong friend, wife, and philosopher, Harriet Taylor Mill (2001). Mill(s) (2001, p 55) conceptualise this idea through an allegory of a ‘tree, which requires to grow and develop itself on all sides’ and hence, from all perspectives. Indeed, ‘[they] who knows only one [hegemonic] side, know little of [the world],’ Mill and Mill (2001, p 35) argue. More recently, Tordzro underlines the same principle encoded into the Ga language conceptualisation of Knowledge in his ‘Story, Storying and Storytelling’ (2018). *No le ye dzen*, as Tordzro (2018) explains, refers to *No* - a Thing, *Le* - to Know, *Ye* - to Be, and *Dzen* - the World, meaning: *knowing in of the world*. In this context, Tordzro (2018) highlights the role of the diversity of home languages and cultures in overcoming the WEIRD hegemony and devaluation of peripheral knowledges and values. This, however, will not happen until the education system embraces and functions by the principles of ethics. Reflecting on the value of ethics within the praxis of contemporary education, Cahn (2011, p xv) recalls a time when he was asked to deliver a lecture addressing the issue. Upon hearing the news, a faculty colleague remarked, ‘it will be a short talk’. According to Cahn (2011, p 4-5), power abuse and exploitation in education are far too vast and too frequent, both through individual misconduct and collective institutional malpractice, calling them a disgrace. In the age of AI, communities’ success and the planet depends on local ethical education for peaceful, harmonious co-existence and loving kindness (see also: Holmes & Porayska-Pomsta, 2022).

Conclusions

The rapidly digitalising post-pandemic humanity is becoming embedded in the global AI matrix, while the education systems worldwide stay anchored in the WEIRD

knowledge and values paradigm. The post-pandemic *digital shock of 2020*, destabilising as it was, proffers new opportunities to re-imagine education systems and to challenge their underpinning values. While AI provides humanity with a ‘unique opportunity to flourish like never before’, it can also become the tool of self-destruction (Tegmark, 2018, p 22). Indeed, the previous technological revolutions of the Industrial age led to disproportional abuse of power, culminating in the rise of the WEIRD, colonialism, genocides and irreversible damage to life on our planet (Mignolo, 2011; see also: Elkins, 2005; Herman, 2014). Drawing together AI researchers like Kai-Fu Lee (2018), who implicitly recognize the importance of the individual and the human heart in the AI domain, with educational researchers aligned with the philosophies of embraced and harmonious planetary co-existence, and the indigenous stakeholders worldwide would be a welcome first step away from hegemony in education.

References

- Ainscow, M. (2016). *Struggles for equity in education: The selected works of Mel Ainscow*. London: Routledge World Library of Educationalists Series.
- Akgun, S. and Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 setting. *AI and Ethics*, 2, 431-440.
- Arizpe, E., Colomer, T. and Martínez-Roldán, C. (2015). *Visual journeys through wordless narratives: An international inquiry with immigrant children and the arrival*. London: Bloomsbury.

- Basch, L.G., Glick Schiller, L. and Szanton Blanc, C. (1994). *Nations unbound: Transnational projects, postcolonial Predicaments, and deterritorialized nation-states*. London: Routledge.
- Bhambra, G.K., Gebrial, D. and Nisancioglu K. (2018). *Decolonising the university*. London: Pluto Press.
- Bowles, S., Gintis, H. (1976). *Schooling in capitalist America: Educational reform and the contradictions of economic life*. New York City: Basic Books.
- Breque, M., De Nul, L. and Petridis, A. (2021). 'Industry 5.0: Towards a sustainable, human-centric and resilient European industry'. European Commission, Brussels: Directorate General for Research and Innovation.
- Cahn, S.M. (2011). *Saints and scamps, ethics in Academia*. Lanham: Rowman & Littlefield Publishers, Inc.
- Castells, M. (1996). *The rise of the network society. The information age: Economy, society and culture trilogy*. Oxford: Blackwell.
- Castells, M. (2001). *The Internet galaxy: Reflections on the Internet. business and society*, Oxford: Oxford University Press.
- Castles, S., de Hass, H. and Miller, M.J. (2014). *The age of migration: International population movements in the modern world*. London: Palgrave Macmillan.

- Caracciolo, D. and Mungai, A. (2009). In the spirit of Ubuntu stories of teaching and research. *Transgression: Cultural Studies and Education*. Rotterdam: Sense Publishers.
- Check Point Software (2021). *Cybersecurity Report*. Tel Aviv: Check Point Software Technologies.
- Chen, J.C. (2017). Nontraditional adult learners: The neglected diversity in postsecondary education. *SAGE Open, Special Collection – Innovative Teaching and Differential Instruction to Cater for Student Diversity*, 7(1), 12.
- Colares da Mota Neto, J. and Santana de Lima, A.R. (2020). Challenges of educational research from a decolonial perspective. *Postcolonial Directions in Education*, 9(2), 154-197.
- Collins, P.H. (2015). Intersectionality's definitional dilemmas, *Annual Review of Sociology*, 41,1-20.
- Collins, P.H. (1998). It's all in the family: intersections of gender, race, and nation, *Hypatia*, 13 (3), 62-82.
- Collins, P.H. (1990). *Black feminist thought: Knowledge, consciousness and the politics of Empowerment*. New York City: Routledge.
- Collins PH (1986). Learning from the outsider within: The sociological significance of Black feminist thought. *Social Problems*, 33(6), 14-32.
- Connell, R.W. (2007). *Southern theory: The global dynamics of knowledge in social science*. Crow Nest: Allen & Unwin.

- Dei, G.J.S. (2008). Indigenous knowledge studies and the next generation: Pedagogical possibilities for anti-colonial education. *Australian Journal of Indigenous Education*, 37 (Supplementary), 5-13.
- Cooley, C.H. (2005). *Social organization: A study of the larger mind*. London: Transaction Publishers.
- Craft, A. (2011). *Creativity and education futures: Learning in a digital age*. Stoke-on-Trent: Trentham Books.
- Craft, A., Jeffrey, B., and Leibling M (Eds. 2001). *Creativity in education*. New York City: Continuum.
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of Colour. *Stanford Law Review*, 43, 1241-1299.
- Crenshaw, K. (1989). 'Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, Feminist Theory and Antiracist Politics University of Chicago Legal Forum, 1/8, 139-167.
- Cubberley, E.P. (1919). *Public Education in the United States*. Retrieved from archive.org/stream/publiceducationi032029mbp/publiceducationi032029mbp_djvu.txt on 15 Oct 2019.
- Curtis, C., Gillespie, N. and Lockey, S. (2022). AI-deploying organizations are key to addressing 'perfect storm' of AI risks. *AI and Ethics*. Retrieved from <https://doi.org/10.1007/s43681-022-00163-7> on 30 October 2022.

- Dede, C. and Richards, J. (2020). *The 60-Year curriculum: New models for lifelong learning in the digital economy*. London: Routledge.
- Deloria Jr., V. (1970). *We talk, you listen: New tribes, new turf*. New York City: The Macmillan Company.
- de Sousa Santos, B. (2014). *Epistemologies of the South: Justice against Epistemicide*, London: Routledge.
- Dewey, J. (1963). *Experience and education*. New York City: Collier Books.
- Dewey, J. (1916). *Democracy and education: An introduction into the philosophy of education*. New York City: The Macmillan Company.
- Dimmock, C. (2020). Connecting research and knowledge on educational leadership in the West and Asia: Adopting a cross-cultural comparative perspective. *Comparative Education*, 56(2), 257-277.
- Dodgson, L. (5 Aug 2017). PhD students have double the risk of developing a psychiatric disorder than the rest of the 'highly educated' population. Business Insider UK Strategy.
- Dussel, E. (1995). *The invention of the Americas: Eclipse of 'the Other' and the myth of modernity*. New York City: Continuum International Publishing Group.
- Dussel, E. (1993). Eurocentrism and modernity: Introduction to the Frankfurt lectures. *Boundary 2 (The Postmodernism Debate in Latin America)*, 20(3), 65-76.

- Elkins, C. (2005). *Britain's gulag: The brutal end of empire in Kenya*, London: Pimlico.
- European Commission (2022). *Industry 5.0: a transformative vision for Europe*. Brussels: Directorate-General for Research and Innovation.
- Fadel, C., Bialik, M. and Trilling, B. (2015). *Four-dimensional education: The competencies learners need to succeed*. Boston: Centre for Curriculum Redesign.
- Fan, S. and Taylor, M. (2019). *Will AI replace us? A primer for the 21st century*. London: Thames & Hudson.
- Fanon, F. (2001). *The wretched of the Earth*, London: Penguin Books.
- Fanon, F. (1986). *Black skin, White masks*, London: Pluto Press.
- Freire, P. (1996). *Pedagogy of the Oppressed*, London: Penguin.
- Frimberger, K. (2017). The ethics of performative approaches in intercultural education. In M. Schewe and J. Crutchfield (Eds.). *Going performative in intercultural education: International contexts, theoretical perspectives and models of practice*. Bristol: Multilingual Matters. Retrieved from https://pure.strath.ac.uk/ws/portalfiles/portal/90417777/Frimberger_2017_The_ethics_of_performative_approaches_in_intercultural_education.pdf on 20 September 2019.
- Foucault, M. (2002). *The archaeology of knowledge*, London: Psychology Press.

- Gale, T., Molla, T. and Parker, S. (2017, p 7-22). The illusion of meritocracy and the audacity of elitism: Expanding the evaluative space in education. In S. Parker, N.G. Kalervo and T Gale (Eds.). Policy and inequality in education. Singapore: Springer.
- Gatto, T.J. (2010). Weapons of mass instruction: A schoolteacher journey through the dark world of compulsory schooling. Gabriola Island: New Society Publishers.
- Ghosh, A.R. (Ed. 2005). CODE: Collaborative ownership and the digital economy. Cambridge: The MIT Press.
- Glick Schiller, N., Basch, L. and Blanck Szanton, C. (1992). Towards a transnational perspective on migration: Race, class, and nationalism reconsidered. New York City: New York Academy of Science.
- Goffman, E. (1990). Stigma: Notes on the management of spoiled identity. London: Penguin.
- Goffman, E. (1959). The presentation of self in everyday life. Garden City: Anchor Books.
- Henrich, J., Heine, S.J. and Norenzayan, A. (2010). Most people are not WEIRD. *Nature*, 466: 29. Retrieved from www.nature.com/articles/466029a.pdf on 30 Sept 2019.
- Hendry, J. and Fitznor, L. (2012). Anthropologists, indigenous scholars and the research endeavour: Seeking bridges towards mutual respect. New York City: Routledge, Routledge Studies in Anthropology.

- Herman, D. (2014). A new way for stewardship of Mother Earth: Indigeneity, *Smithsonian Magazine*. Retrieved from smithsonianmag.com/smithsonian-institution/new-way-stewardship-mother-earth-indigeneity-180952855/ on 07 Feb 2020.
- Hobson, J. (2012). *The Eurocentric conception of world Politics: Western international theory 1760-2010*. Cambridge: Cambridge University Press.
- Holmes, W. and Porayska-Pomsta, K. (Eds. 2022). *The Ethics of Artificial Intelligence in education: Practices, challenges, and debates*. London: Routledge.
- hooks, b. (2015). *Feminism is for everybody: Passionate politics*. New York City: Routledge.
- hooks, b. (2003). *Teaching community: A pedagogy of Hope*. New York City: Routledge.
- Jemielniak, D. and Przegalińska, A. (2020). *Collaborative society*. Cambridge: The MIT Press.
- Jobs, S. (1997). Apple's worldwide developers conference 1997, San Jose Convention Centre, San Jose, CA. Retrieved from [superapple4ever YouTube channel youtube.com/watch?v=GnO7D5UaDig](https://www.youtube.com/watch?v=GnO7D5UaDig) on 27 Sept 2020.
- Kumordzi, D., Tordzro, G.K., Imperiale, M.G. and Benagr A. (2016). *Eduketi and dokuma: Rediscovering educational principles and processes using Adaganda etymology*. RM Borders Early Career Researchers' Conference, School of Performing Arts. Accra: University of Ghana.

- Lee Kai Fu (2018). *AI super-powers: China, Silicon Valley and new world order*. Boston: Houghton Mifflin Harcourt.
- Loomba, A. (2005). *Colonialism/Postcolonialism*. London: Routledge.
- Magnússon, G., Göransson, K. and Lindqvist, G. (2019). Contextualizing inclusive education in educational policy: the case of Sweden. *Nordic Journal of Studies in Educational Policy*, 5(2), 67-77.
- Mazzucato, M. (2018). Mission-oriented innovation policies: challenges and opportunities. *Industrial and Corporate Change*, 27(5), 803–815.
- Mazzucato, M. (2016). From market fixing to market-creating: A new framework for innovation policy. *Industry and Innovation*, 23(2), 140–156.
- Mazzucato, M. (2011). Building the entrepreneurial state: The state has not just fixed the markets, but actively created them, Demos. Retrieved from oro.open.ac.uk/30159/1/Entrepreneurial_State_-_web.pdf on 07 Feb 2020.
- Mead, G.H. (1967). *Mind, self and society: From a standpoint of social behaviorist*. Chicago: University of Chicago Press.
- Mill, J.S. and Taylor-Mill, H. (2001). *On Liberty*. Kitchener: Batoche Books Limited.
- Mignolo, W. (2011). *The Darker side of western modernity: Global futures, decolonial options*. Durham: Duke University Press.

- Mignolo, W. (2002). The geopolitics of knowledge and the colonial difference'. *South Atlantic Quarterly*, 101, 57-96.
- Mokyr, J. (2001). The rise and fall of the factory system: technology, firms, and households since the industrial revolution. *Carnegie-Rochester Conference Series on Public Policy*, 55, 1-45.
- Nair, I. and Henning, M. (2017). *Models of global learning*. Washington: Association for American Colleges & Universities eBooks.
- Odena, O. (2018). *Musical creativity revised: Educational foundation, practices and research*. London: Routledge.
- OECD Report* (2018). The future of education and skills: Education 2030. The future we want. Paris: OECD Publishing. Retrieved from [https://www.oecd.org/education/2030/E2030%20Position%20Paper%20\(05.04.2018\).pdf](https://www.oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf) on 20 October 2020.
- Pacari, N. (1996). Ecuador taking on the neoliberal agenda. *NACLA Report on the Americas*, 29(5), 23-32.
- Petrina, S. (2004). The politics of curriculum and instructional design/theory/form: critical problems, projects, units and modules. *Interchange*, 35(1), 81-126.
- Phipps, A. (2019). *Decolonising multilingualism: Struggles to decreate*. Bristol: Multilingual Matters.

- Phipps, A. (2010). Drawing breath: creative elements and their exile from higher education. *Arts and Humanities in Higher Education*, 9(1), 42-53.
- Phipps, A., Sithole, T., Tordzro, N.D. and Tordzro, G.K. (2020, p 183-198). English last: displaced publics and communicating multilingually as social act and art. In E. Scandrett (Ed.). *Public sociology as educational practice: Challenges, dialogues and counter-publics*. Bristol: Bristol University Press.
- Richardson, W.J. (2018, p 231-248). Understanding Eurocentrism as a structural problem of undone science. In G.K. Bhabra, D. Gebrial and K. Nisancioglu (Eds.). *Decolonising the university*, London: Pluto Press.
- Robinson, K. and Aronica, L. (2016). *Creative schools: The grassroots revolution that's transforming education*. London: Penguin.
- Robinson, K. and Aronica, L. (2015). *Creative schools: Revolutionising education from the ground up*. London: Allen Lane.
- Robinson, K. and Aronica, L. (2010). *The element: How finding your passion changes everything*. London: Penguin.
- Russell, S.J. and Norvig, P. (2021). *Artificial intelligence: A modern approach*. Hoboken, NJ: Pearson.
- Schmidt, E. and Cohen, J. (2013). *New digital age: Reshaping the future of people, nations and businesses*. London: John Murray.

- Schwab, K. and Malleret, T. (2021). *The great narrative*. Geneva: World Economic Forum.
- Schwab, K. and Malleret, T. (2020). *Covid-19: The great reset*. Geneva: World Economic Forum.
- Schweisfurth, M. (2015a). *Learner-centred education in international perspective: Whose pedagogy and for whose development?* Abington: Routledge Education, Poverty and International Development.
- Schweisfurth, M. (2015b). *Learner-centred pedagogy: Towards a post-2015 agenda for teaching and learning*. *International Journal of Educational Development*, 40, 259-266.
- Schweisfurth, M. (2013). *Learner-centred education in international perspective*. *Journal of International and Comparative Education*, 2(1), 1-8.
- Skinner, B.F. (1953). *Science and human behaviour*. New York City: The Free Press.
- Smith, L.T. (2012). *Decolonizing methodologies: Research and indigenous peoples*. London: Zed Books Ltd.
- Smith, M.P. and Guarnizo, L. E. (1998). *Transnationalism from below*. New Brunswick: Transaction Publishers.
- Soysal, Y.N. and Strang, D. (1989). *Construction of the first mass education systems in nineteenth-century Europe*. *Sociology of Education*, 62(4), 277-288.
- Tajfel, H. (1974). *Social identity and intergroup behavior*. *Social Science Information*, 13: 65-93.

- Tajfel, H. and Turner, J.C. (1979, p 7-24). The social identity theory of intergroup behavior. In W.G. Austin and S. Worche (Eds.). *Psychology of intergroup relations*, Chicago: Nelson-Hall.
- Tegmark, M. (2018). *Life 3.0: Being a human in the age of Artificial Intelligence*. London: Penguin Books.
- Toffler, A. (1981). *The third wave*. London: Pan Books.
- Toffler, A. (1971). *Future shock*. New York City: Bantam.
- Tordzro, G.K. (Ed. 2019a). *Funtunfunefu 'synched'*. Glasgow: Meli Creatives Publishing.
- Tordzro, G.K. (2019b). *Azorli blewu: Ha Orchestra. Compositions*.
- Tordzro, G.K. (2018). *Story, storying and storytelling: A reflection on documentary film, music and theatre as creative arts research practice*. PhD Thesis. Glasgow: University of Glasgow.
- Tordzro, G.K. (2016). *Music across Borders. Documentary*.
- Tordzro, G.K. and Ndeke, N. (Eds. 2020). *Mazungumzo ya shairi*. Glasgow: AdinkraLinks Publications.
- Tordzro, G.K. and Phipps, A. (2016). *Broken world, broken world – the making*. Theatre Production.
- Uflewski, A. (2018). *From nowhere to now-here: Online and offline belonging identity negotiations of millennial Poles in Glasgow, Scotland*. PhD Thesis. Glasgow: University of Glasgow.

- UNESCO (2021). Reimagining our futures together: A new social contract for education: Report from the International Commission of the Futures of Education. Paris: United Nations Educational, Scientific and Cultural Organisation. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000379707.locale=en> on 30 October 2022.
- Vertovec, S. (2019). Talking around super-diversity. *Ethnic and Racial Studies*, 42(1), 125-139.
- Vertovec, S. (2017). Mooring, migration milieus and complex explanations. *Ethnic and Racial Studies*, 40(9), 1574-1581.
- Vertovec, S. (2010). Towards post-multiculturalism? Changing communities, conditions and contexts of diversity. *International Social Science Journal*, 61 (199), 83-95.
- Vertovec, S. (2008). *Transnationalism*. London: Routledge.
- Vertovec, S. (2007). Superdiversity and its implications. *Ethnic and Racial Studies*, 30, 1024-1054.
- Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological process*. Cambridge: Harvard University Press.
- Wakefield, J. (26 May 2021). AI emotion-detection software tested on Uyghurs. *BBC News Technology*. Retrieved from: <https://www.bbc.co.uk/news/technology-57101248> on 09 September 2021.
- Wallerstein, I. (1979). *The capitalist world economy*. Cambridge: Cambridge University Press.

Wallerstein, I. (1974). *The modern world-system*. New York City: Academic.

wa Thiong'o, N. (1986). *Decolonising the mind: The politics of language in African literature*. London: James Currey Ltd.

wa Thiong'o, N. (1969). *Homecoming: Essays on African and Caribbean literature, culture and politics*. London: Heinemann.

Wilby, P. (2014). Alan Tuckett: the man who invented the adult learner. *The Guardian* (21 Oct 2014). Retrieved from theguardian.com/education/2014/oct/21/man-invented-adult-learner-alan-tuckett on 14 Sept 2019.

Wrey, M. (2014). *Cultural sociology: An introductory reader*. New York City: W.W. Norton & Company.