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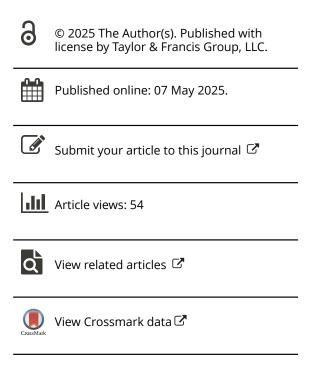
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# School Leadership in the Anthropocene: Four Pillars of an **Intelligent, Humane Response**

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#### **ABSTRACT**

This article explores how school leadership can effectively respond to the challenges of the Anthropocene—an era defined by environmental and social crises. It presents four key pillars for fostering intelligent, humane leadership, underpinned by pragmatist philosophy combined with Raworth's doughnut model. These are: bridging ideologies, shared agency, context relevance and intelligent and shared accountability. We invite further thinking and reflection on these pillars and their application.

#### **KEYWORDS**

Educational leadership: Anthropocene; pragmatism; sustainable development goals

In February 2024, UNESCO launched the Global Education Monitoring (GEM) report to look at the requirements of good leadership in education, and how they varied between countries and over time in seeking to achieve the United Nation's Sustainable Development Goals (SDGs). UNESCO (2024) argued that:

Leaders at multiple levels matter, from those within the school, to those outside of the school such as middle managers, and including those outside of education systems in government, or those working on legislature and oversight. (UNESCO, para.1)

In our article, we use "school leadership" in UNESCO's (2024) broad sense to discuss its role in achieving sustainable life for humans and other species on Earth. The term "Anthropocene" was coined by Crutzen and Stoermer in a newsletter for the Geological Society in 2000 to describe a new epoch, superseding the Holocene, in which the human species has had dramatic impact on the planet; we use it here for historical positioning and contemporary context.

Acknowledging that we are in the Anthropocene entails more than recognizing changes to the environment, climate, or issues of sustainability. While the term "climate change" is wellknown and widely used academically, it is insufficient as it often has served as a euphemism for a range of effects resulting from human social and economic activities, including changes in land use, soil degradation, ocean acidification, and species extinctions. These effects have been essentially the consequences of humanity's ways of perceiving and interacting with the world—of capitalism, large-scale industrialization, and viewing nature as separate from us, and as a resource to exploit. While such a worldview has witnessed unparalleled advancements in technology, science, medicine, and nutrition, it has paradoxically set us on a catastrophic trajectory.

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However, fixating on the "crisis" only contributes to a sense of inevitability and, all too often, hopelessness. A recent survey conducted in 10 countries among 15–16-year-olds revealed that eco-anxiety was prevalent, with 45% of respondents stating that it affected their daily lives and 75% describing the future as frightening (Hickman et al., 2021). Therefore, school leaders will need to grapple with the "dragons of inaction" that prevent responses adaptive to this reality (Gifford, 2011).

We argue that positioning ourselves within this epoch now can stimulate new narratives for education by asking what it means to operate as teachers, leaders, and policymakers within the Anthropocene. We refer to the current epoch as existing not only *physically* (geologically) but also *psychologically* and *socially*, necessitating a new paradigm for policy and practice:

The Anthropocene is not something we can make go away but a place where we are, a part of who we are. Therefore, we must recognize it as the starting point for any meaningful response. (Schinkel, 2020, p. 5)

Rather than proposing a set of solutions—too daunting a project for any one article—we present a framework for leadership in the Anthropocene that recognizes the urgency of our challenges, the fallibility of our knowledge and the uncertainty of the consequences of our actions in an unstable climate. We also explore the moral dilemmas school leaders face, and the need for both new ethical perspectives and more agential approaches to reconcile them. To do so, we must first recognize that our current crises have been created by "educated" individuals acting within ethical parameters that are now detrimental to us and our planet. A knowledge-based, target-and-output-led approach to education that marginalizes or overlooks this crisis is evidently insufficient.

Our framework of four pillars for educational leadership in the Anthropocene draws on pragmatist philosophy and an agential approach from social ecology, expanding the concept of agency to include the preservation of a habitable planet. It also draws on two practical models—UNESCO's SDGs and Raworth's doughnut model (Raworth, 2017a, 2017b)—that help translate theory to practice. In doing so, we aim to free school leadership (for now) from long-standing, antagonistic, and essentially contested debates about the fundamental aims and purposes of education in favor of goals that build consensus around the well-understood challenges we face now, and our shared value for life on Earth. We outline principles for school leadership that emphasize diversity and sensitivity to context, especially in recognizing the disparities between the Global North and South. We demonstrate the vital role of agency, and the need to combine our energies, in spite of differing ideologies. Finally, we suggest indicators for holding each other accountable while implementing these changes.

#### The Significance of the Anthropocene

While the term Anthropocene is slowly gaining currency in academic literature, it has been little used in connection with educational leadership, with a few exceptions (e.g. Bottery, 2016; Carr, 2016; Kadji-Beltran et al., 2013; Kensler, 2022; Kensler & Uline, 2016; Pepper, 2014; Veronese & Kensler, 2013). The term Anthropocene has been contested, with debates around (a) when it started—or whether it has started, (b) whether all should be held responsible for the actions of only some humans (especially the Global North), (c) whether the term is too narrow or too broad, and (d) whether we should envision a "good" or "bad" outcome for this epoch (see Paulsen et al., 2022). The anthropogenic effects of this epoch

(i.e. sharp changes in greenhouse gases altering the atmosphere) have been thought by some to have started with the industrial revolution around 200 years ago (e.g. Crutzen & Stoermer, 2000). However, it has been argued that this framing had antecedents in earlier periods, including the agricultural revolution (which led to larger populations and the growth of cities, specialization of labor, etc.), European expansion into the Americas (leading to mass human population extinctions), and that these periods have set the conditions for a more recent technological revolution, especially since the 1940s (nuclear weapons, artificial intelligence, genetics, and so on). For a thorough discussion of the Anthropocene, see Lewis and Maslin (2020) who, taking a purely geological stance, contended a much earlier starting point for the Anthropocene (around 400 years ago), while recognizing the above events as highly significant. While some writers (e.g. Ruddiman, 2003) argued that cyclical trends in greenhouse gases began thousands of years ago, and cautioned about arriving at early conclusions about the Anthropocene as a new geological epoch, we argue that since the consensus has been very strong that humans have already caused, and continue to cause, intense biophysical disturbances to the planet, that the term Anthropocene should thus be broadly accepted and we should consider its significance in all realms of action.

The exact starting point of the Anthropocene does not concern our central argument since common moral and philosophical stances underpin modern human behavior. Specifically, the seventeenth Century dualist position of Rene Descartes led us to separate not only mind from body but humans from nature. Indeed, Paulsen et al. (2022) argued that there is a danger in a certain anthropocentric view of this epoch that reinforces the Cartesian dualist underpinnings of human activity, leading to a failure to reexamine how humans and non-humans coexist rather than viewing nature as a mere resource for humans. This Cartesian view also morally buttresses economic models based on continuous economic growth through material exploitation which has led to both dramatic advances in living conditions for many millions of people (and with the potential to continue to do so for many others) while bringing us sharply to a point where we reach dangerous ecological tipping points. We therefore assert the benefits that continue to emerge from modern science and capitalist innovation, and the need for their axiological reorientation in the service of new sustainable goals. Therefore, educational leadership in the Anthropocene needs to address these differing societal contexts, using an economic model that ensures a good life for as many people as possible while respecting planetary boundaries. This means both shifting the dominant narratives about the economy and our relationship to nature and applying and refining contemporary technological and economic solutions. We further develop these points below.

## The Need for New Narratives and Moral Theories in Educational Leadership

Much of the debate surrounding education in the Anthropocene has focused on how schools have provided increased and improved environmental education to younger generations. However, as Schinkel (2020) explained, before we explore how schools can contribute to the solution, we must first acknowledge their role in bringing us to our current state:

This entails more than acknowledging that many educated people have contributed to environmental destruction, have invented greenhouse-gas-emitting machines, and so on - though this is important, too. It entails that we consider education from the perspective of deep history: what is education, from the perspective of the evolution of our species in the Pleistocene, and what has

been its role in that evolution? More specifically, what was education's role in the evolution of complex societies, and what is its role in such societies now? (p. 1)

The urgency of the challenges we face makes reframing the aims and approaches of schools a moral imperative. Higham (2022) has recently argued that our current educational objectives, rooted in three traditional theories of moral philosophy—utilitarianism, deontology, and virtue ethics—are insufficient in responding swiftly and comprehensively to current threats and opportunities. Utilitarianism, with its focus on selecting education approaches based on calculations of future human happiness and preference, relies on assumptions of socioeconomic and ecological continuity that are increasingly unreliable. For instance, prioritizing giving children the skills they need for good jobs in their community loses significance when young people may be forced to migrate due to ecosystem degradation. Next, the deontological claim that adults have the right and duty to pass down their moral codes to children and shape their education accordingly is undermined by adults' collective failure thus far to adequately respond to these challenges. Lastly, the virtue ethicist position, which emphasizes shaping individuals' characters and habits, fails to recognize the significance of adequate resources and a stable cohesive society in fostering moral behavior, as well as the collective nature of the responses required to address complex threats and increased interconnectivity.

Together, Higham (2022) argued that these moral theories reflect the belief that, to paraphrase, what was good enough for us is good enough for you. However, the projected life paths of today's young people and the assumptions that shaped their parents' and grandparents' generations have been increasingly unsustainable (Higham, 2022). Consequently, our education leaders have a responsibility for helping shape new narratives in which current and future generations can lead secure, sustainable, and meaningful lives. As Brennan (2017) stated, "What happens when the prevailing stories no longer make sense of the world?" (p. 45).

In their background paper for UNESCO's Futures of Education report, the Common Worlds Research Collective (2020) set out a bold alternative story: "seven visionary declarations of what education could look like in 2050 and beyond" (p. 2), when the world as a whole has "permanently delinked education from the twin logics of infinite economic growth and human development and re-sutured it to the logics of ecological survival" (p. 7). This stance built on the wider critique of anthropocentrism from ecological thinkers since the 1970s in favor of biocentric or ecocentric stances seeing all living things—and even non-living things like mountains—as having "innate moral standing" (Attfield, 2017, p. 11). We broadly share both this ambition and key critiques: of dualism having separated humans from "nature," and schools having focused on individual development rather than collective coexistence. We differ, firstly, in our discomfort with its binary representations of the causes of, and solutions to, the challenges we face; secondly, in our sense of what might enable feasible trajectories from our current situation to any preferred future. The Common Worlds Research Collective (2020) imagined that "the Euro-Western human-centric stranglehold on education" (p. 3) would crumble through insurgent popular rejection, spurred by mass realization of its failure, in favor of "pluriversal frameworks associated with epistemologies of the South" (p. 4) that would dethrone humans as colonial masters of the Earth and would resituate them as equitable cohabitants. In a political climate increasingly shaped by culture wars built around clusters of diametrically opposed positions, often tribally defended or denounced, we do not see such a revolution in favor of highly progressive positions as likely—particularly as many different progressive groups have been divided against each other through this shift in discourse (Newman & Clarke, 2022), and are politically and economically disadvantaged. Further, school leaders mostly work in relatively restrictive institutional and political contexts with a strong focus on student success based on graded individual performance; for them to explicitly reject key tenets would likely lead to the loss of their role, or inability to rise into such roles, as well as wider repercussions for their schools. Any major changes in values and operation would need to be incremental and involve a wider coalition going well beyond school leaders.

Further, as the Common Worlds Research paper (2020) acknowledged in its citations of Butler, Latour, Haraway, and other radical critics, the Euro-Western human-centric approach has not been monolithic; it has always contained a diversity of voices, with many opposing totalizing narratives around individual freedom, endless growth and exploitation. Similarly, non-Western and Indigenous traditions are also diverse. For example, the value of stewardship the Common Worlds Research (2020) denounced as Western and anthropocentric was similarly held by the Oromo people of Ethiopia, who deemed it acceptable to kill animals regarded by humans as pests, but held the destruction of a whole species to lessen the creation of God (Attfield, 2017).

We argue that the role of education leaders is not to replace one worldview with another; rather, it is to draw on theories, traditions, and institutions with diverse ideological, cultural, and geographical roots to explore shared crises and possibilities with open minds. Finally, we suggest that while visions of preferable futures are valuable provocations, they cannot direct or bind school leaders—as they could only ever be realized in context, in ongoing response to both predictable and unforeseeable factors.

## **Pragmatism: A Paradigm of Intelligent Response**

A new approach to school leadership in the Anthropocene needs to draw on different ethical traditions to the traditional ones reviewed above. We propose starting with the pragmatism of John Dewey (1966/1916), who argued that a good educational aim:

- Must be based upon a consideration of what is already going on; upon the resources and difficulties of the situation.
- Is experimental, and hence constantly growing as it is tested in action.
- Must always represent a freeing of activities. (p. 102)

Dewey's first radical move, echoing Schinkel (2020) above, was to start from where we are, rather than with an idea of where we want to be: the "resources and difficulties of the present situation" must inform our sense of what is necessary, desirable, and possible (Dewey, 1966/1916, p. 102). Starting from where we are demanded that we give weight to what Booth (2011) called "imperatives ignored in the past and clamouring for attention in the present" (p. 31); he cited two related imperatives: "living within the means of our biospheres" and seeking to prevent "destructive, soul-breaking conflicts in the world" (Booth, 2011, p. 31). Dewey (1966/1916) further rejected the idea that the aims of schools should be represented as timeless or settled. These two criteria together redefined the aims of what he called "endsin-view" (p. 102): strategic, responsive to changing circumstances, interests, and imperatives, and subject to ongoing refinement and review. If one of our educational ends-in-view were a habitable planet in 30 years' time, its value would be realized not simply by presenting curricula

that address relevant issues, but through designing, pursuing, and refining activities that demonstrably help to bring that end about.

To avoid despair, increased knowledge of environmental threats must come alongside increased engagement with means of change and a growing sense of possibility resulting from repeated opportunities. Dewey's (1966/1916) third criterion above, therefore, related to the deliberate cultivation of individual and collective agency in all school stakeholders. Drawing on Dewey's work, Biesta and Tedder (2007) argued that agency is too often understood as a personal quality divorced from context; they coined the term "ecological agency" as something that can be "achieved, rather than possessed, through the active engagement of individuals with aspects of their contexts-for-action" (p. 132). They set out its dimensions:

- 1. Iterative routinized action that is selectively re-activated to give it stability
- 2. Projective creative reconstruction of actions based on actors' values, fears, desires, and hopes
- 3. Practical-evaluative the capacity of actors to make informed and evaluative decisions from alternatives, to act on current challenges, demands, and dilemmas. (Biesta & Tedder, 2007, p. 136)

Here Biesta and Tedder (2007) restated Dewey's (1966/1916) principles in a way that allowed them to be imagined and realized as objectives of a school and its curricula. The environmental connotations of their use of "ecological" were accidental, as it referred to the Deweyan framing of humans as organisms within an environment. But it prefigured the call from Manuel-Navarrete and Buzinde (2010) for an expansion of this notion to explicitly encompass interactions with ecological structures that are under such threat as to constrain individual and collective agency:

Emerging "socio-ecological agents" [also] have the task ahead of dealing with self-imposed material constraints, which surface from a clear awareness about self-inflicted threats (e.g. climate change) and with no place else to go to avoid these threats. Additionally, it is important to note that such voluntary limits are not only to be adopted by individuals and specific societies, but they must be embraced by humanity as a whole. (Manuel-Navarrete & Buzinde, 2010, p. 142)

In Rushton et al.'s (2025) case studies of climate change and sustainability education (CCSE) in English schools, they confirmed the importance of leadership that creates the conditions for agency. Applying Biesta and Tedder's (2007) dimensions of social ecological agency, they concluded that the most successful leaders were advocates for CCSE across their community, working alongside other stakeholders "where shared ideas and beliefs are key enablers of agency" (Rushton et al., 2025, p. 10).

Leadership within this model works through the dynamics and interactions of the macro, exo, meso, and micro layers of the education ecosystem (e.g. Godfrey, 2019). System leaders in this context have relational roles within and outside of schools that stimulate action through the collective agency of various actors. This kind of leadership requires the ability to live with uncertainty and tensions as changes come about in complex, non-mechanistic, and nonlinear-causal ways in this interconnected system. This will challenge orthodoxies about the development of school leaders and the ways in which they are held to account, which we return to later.

Pragmatism also offers new understandings of knowledge and intelligence that serve our reconceptualization of educational aims. Dewey's view "was that knowing is an event that takes place between an organism and an environment rather than a static quality of either mind or reality or their correspondence" (Koopman, 2015, p. 55). Knowing is thus tied up with experience, making it "intimate, not abstract" (Dewey, 1966/1916, p. 185): "its work and aim must be distinctively reconstructive or transformatory" (Dewey, 1903, p. 100). To come to know, for Dewey (1966/1916), was to respond to issues we face in ways that bring about desired change, whether conceptual, material, or both. Intelligence, then, describes not the fixed processing speed of individual minds or the depth of core knowledge foundations per se, but the quality of our responses to challenges. We do not assert that this pragmatist perspective is necessarily right for all time; we do assert that it is valuable now.

An enduring critique of pragmatism is that it is scientistic, focused on problem-solving but lacking a moral core (Koopman, 2015); this is in part because Dewey (1966/1916) eschewed questions about human nature and the good life, seeking instead to expand human possibilities in an ongoing journey of improvement with no final destination. But, as Cavell (2004) pointed out, humans are flawed and often are not in the mind to do the rational thing; he accused pragmatists of not asking why our ever-growing knowledge "fails to make us better than we are or provide us with peace" (p. 5). Pragmatists have previously offered various solutions to this problem (see Koopman, 2015), but another presents itself in response to our current predicament: that life itself has value—human and non-human, individuals and ecosystems, present and future—and that it is under existential threat on this planet. In many science fiction films, it takes an alien invasion to spur divided peoples into coordinated action; in our reality, we are both the protagonists and the alien forces. We do not need global consensus on timeless human aims and capacities, nor on the superiority or inferiority on particular cultural and economic paradigms, nor on a unitary vision of the future, to agree on timely endsin-view to guide our actions in response to existential threats.

In summary, we propose a new principle to inform good educational aims: they should enable intelligent and humane responses to the imperatives that demand our attention. This is not possible without bold, innovative, and strategic leadership. We next turn to frameworks that can support educational leaders and policymakers to enable such responses.

## **Sustainable Development Goals and the Role of Education**

The SDGs (see Figure 1) were established following the 1992 Rio Summit on Sustainable Development, marking a significant milestone in raising global awareness of environmental and development issues. These goals encompass a broader spectrum of areas and are intended to involve all nations worldwide (for a more comprehensive description, refer to Bourn & Hatley, 2022). The seventeen goals are shown below:

A cohesive approach to education for sustainability requires, at a minimum, linking our focus on education in SDG 4 with SDG 13 on climate action. However, Tosun and Leininger's (2017) argument—that the interconnectedness of the challenges and goals detailed in the SDGs demands policy coherence and integration across multiple sectors such as food, water, energy, and climate—requires we rethink more fundamentally. Similarly, Elkington (2013) outlined how the development and use of the triple bottom line has sought to broaden the remit and responsibility of businesses to incorporate social and ecological sustainability alongside the financial. Yet our education systems are still primarily focused on a single bottom line



**Figure 1.** The UN sustainable development goals. Source: https://en.unesco.org/sustainabledevelopmentgoals

of academic outcomes, founded on the belief that academic disciplines alone provide "the knowledge, understanding, skills, and disposition that are to be learned by school students" (Shulman, 1987, pp. 8–9). By default, they reproduce the kind of human capital currently valued for economic growth: specialization in siloed sectors within an unsustainable economic model.

Sterling (2014) argued that SDG 4 overemphasized the (important) aims of increasing both school attendance and literacy and numeracy, neglecting UNESCO's assertion elsewhere that Education for Sustainable Development (ESD) "is education for social transformation with the goal of creating more sustainable societies" (UNESCO, 2012, p. 33). In response, he presented a three-level model of progressive engagement in ESD in schools: from transmission of relevant information to transactional learning based on dialogue and inquiry that deepens understanding and reflects on values, to transformational learning that builds capacities for informed cross-sectoral engagement, agency, and empowerment across society—all informed by the need to "win the future we want" (Sterling, 2014, p. 94).

Our pragmatist position shares with Sterling's (2014) model a focus on the desired end of sustainable societies, and on building people's knowledge and capacities to realize them. However, it rejects the proposal for a tiered pedagogy, where learning about sustainability forms the foundation for subsequent critical questioning and empowered action because it reframes ESD as a curriculum area to be planned, taught, learned, and mastered before students are ready to reflect, plan, and act. A Deweyan perspective identifies sustainable development not as a subject but as a complex and evolving interdisciplinary imperative, with which even young children are already deeply engaged. This situates young people's present realities at the center of their socio-ecological agency and expands them through addressing challenges and opportunities encountered in all spheres of life, local and global. From this perspective, the SDGs together can act as a broad cross-curricular framework to inform questioning and knowledge acquisition around how we should build a sustainable shared future, starting today.

Importantly, Facer (2019) warned that reinterpreting schools as a site to address the ecological crisis risks "abdication of the responsibility of us as adults today" (p. 12). School



leaders and practitioners must simultaneously undergo and model these processes to their learners since it will be too late to simply rely on the next generation having the necessary worldview.

#### Raworth's Doughnut

Kate Raworth's (2017b) approach to sustainable development has gained significant recognition and use across academia, policymaking, and other fields. Raworth's model (see Figure 2) provides a conceptual framework for in educational leadership that responds to the challenges explored above. Fundamental to this framework is a broader understanding of the social, economic, and environmental factors that define the educational endeavor. This means leading a school system that produces more than just adults ready for production and consumption in an economy set up for growth. Raworth (2017a) likened the pursuit of Gross Domestic Product (GDP) growth to a cuckoo in the economic nest: just as cuckoos lay their eggs in the nests of other birds, which eventually grow and dominate the nest, GDP has become the dominant goal of our economy. The economic theories that have prevailed in recent decades fail to consider the finite resources of our planet and overlook the logical impossibility of pursuing infinite GDP growth (see Hickel, 2020; Raworth, 2017b; Kallis, 2018). GDP measures are flawed also in their inability to distinguish good from bad growth by including all economic activities in monetary terms, even when they harm the environment or society. Simultaneously, GDP neglects to capture valuable but non-monetized activities like parental or voluntary work (see Talberth et al., 2007).

Our school system operates within a planet of limited resources and should be led—and measured—in ways that place value on the kinds of economic activity that benefit humankind and our biosphere in the long run. Viable alternatives to GDP exist, such as the Index of Sustainable Economic Welfare (ISEW) and the Genuine Progress Indicator, also known as

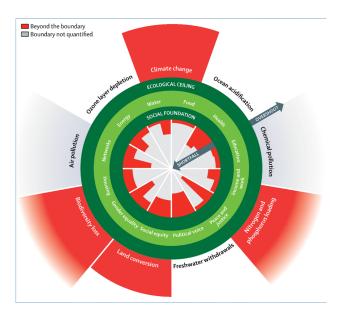


Figure 2. The 'Doughnut' model of sustainable development. From: Raworth (2017a, p. 48).

"Green GDP measures" (e.g. Stjepanović et al., 2017). Several countries are now using one of these measures to consider social and environmental issues alongside traditional measures of economic activity. The GDP growth model nevertheless presents a paradox: it has succeeded in improving the living standards of millions while simultaneously causing destructive consequences for the planet, particularly due to its heavy reliance on fossil fuels (Hickel, 2020). Raworth (2017b) proposed a powerful solution to this contradictory situation between economic growth and environmental degradation. Her doughnut model outlined what humanity needs to do to thrive within planetary boundaries:

The light green center of the doughnut ring is described by Raworth as the "safe and just space for humanity," characterized by dignity and opportunity for everyone, supported by a regenerative and distributive economy (Raworth, 2017b, p. 44). The dark green inner ring represents the social foundation necessary for human flourishing, and the twelve social indicators outside of this ring represent the common goods that contribute to it. These indicators are derived from the SDGs (UN Department of Economic & Social Affairs, 2015). The outer circle of the doughnut is formed by the planetary boundaries that safeguard Earth's life-supporting systems. There are nine ecological indicators that depict these planetary boundaries, which Raworth adapted from a paper by Rockström et al. (2009). The dark red areas on the diagram indicate where we have already exceeded planetary boundaries, while the inner circle reveals the deficiencies in meeting the essential physical and social elements required for humans to lead fulfilling lives.

Raworth's model helps distinguish and clarify the formidable challenges humanity faces. To date, there have been no examples of countries successfully lifting themselves out of poverty without concurrently increasing GDP (Raworth, 2017b). Recent evidence further confirms that in the past two decades, more countries have exceeded their biophysical boundaries than ever before. While some countries, like Costa Rica, have made progress in this regard, no country currently meets the basic social needs of its citizens at a globally sustainable level (Fanning et al., 2021). Nonetheless, Raworth's model itemizes and frames these challenges in ways that make humane and intelligent leadership responses more conceivable and directed.

#### Four Pillars for Educational Leadership in the Anthropocene

Below, we outline a conceptual framework comprising four pillars of school leadership in the Anthropocene (see Figure 3), which takes a pragmatist perspective to guide action and uses Raworth's Doughnut (Raworth, 2017b) as a framework for living sustainably.

#### **Bridging Ideologies**

Regardless of our differing beliefs, we share a planet fueled by the sun, with finite natural resources and dynamic ecosystems. Thus, Raworth (2017b) argued, we need to transition to a circular, regenerative economy where politicians and economists are agnostic toward the crude indicators of GDP growth. Raworth's (2017b) model is valuable in avoiding alienating language, such as calling for the abandonment of capitalism, which would elide benefits under-developed nations might achieve by pursuing similar aims and strategies to the wealthier nations without critical impacts on global resources.

Technological innovations will be part of the solution but not sufficient. As Curren and Metzger (2019) pointed out, if markets are left unchecked, prioritizing profitability and treating everything

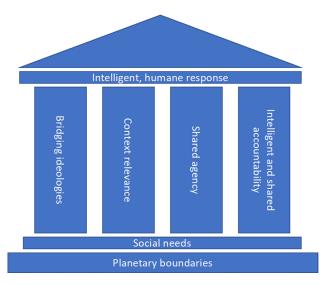


Figure 3. Four pillars for school leadership in the Anthropocene (authors).

else as expendable, there is no guarantee that they will generate and scale up the necessary technical innovations to prevent catastrophic harm to billions of people and other living beings. Moreover, while drawing on scientific evidence, there is still room to recognize the potential moral power of diverse ideologies and traditions in contributing to humanity's response.

School leaders can contribute by creating inclusive environments that draw on rich and diverse historical, cultural, philosophical, and spiritual perspectives. Manuel-Navarrete and Buzinde (2010) suggested crafting "a new creation story about where we come from, who we are as human beings, and what our future possibilities will be" (p. 147). We argue that these perspectives should be woven into multiple stories, embracing the diversity of perspectives and talents that will enable us to tackle various challenges with creativity and compassion. These stories should move away from a narrative of perpetual material growth and instead focus on flourishing within social and ecological boundaries, with schools playing a central role. Importantly, this approach should be embedded throughout the entire school, influencing community relationships and driving cross-curricular developments.

## **Shared Agency**

School leadership plays a crucial role in improving teaching and learning, aligning with the objective of SDG4 as outlined in the Incheon Declaration and Framework for Action adopted by the World Education Forum in 2015. However, there is widespread disconnection between the need to transform schools and the potential of school and system leadership to facilitate such transformation. Educational scholarship and international organizations often overlook the role of leaders in promoting not only quality and equity in school organizations but also a strongly humanistic vision and a focus on the global public good. This misconception arises from a widely held perspective that leadership is primarily concerned with managerial tasks, competition, and individual effectiveness. While this may be the case in certain contexts, leadership extends beyond technical management. It is fundamentally about vision and collaboration, within the contexts of specific school goals and the global commons.

Given the need for an agential approach in education in the Anthropocene (Bourn & Hatley, 2022), adopting inclusive and distributed models of school leadership is vital (e.g. Mincu & Granata, 2024). In Gan's (2021) study of elementary school principals in Israel, the role of school leaders in creating conditions for environmental education (EE) and achieving the Green School Certificate was explored. The research highlighted the complexity of leadership in this context, and emphasized collaboration among teams of principals, teachers, students, and the community, with everyone being seen as leaders at all times, led by a principal with a strong vision. Gan (2021) highlighted the importance of practical training in implementing distributed leadership models for change and learning to develop a leadership identity that incorporates environmental education.

Building upon Gan's (2021) research, four change domains for leadership have been proposed: (a) integrating EE into the school vision to promote a whole-school approach, encompassing curriculum, policies, and school culture that enhance education and promote an equitable society, (b) facilitating the learning and deep understanding of EE principles among school staff and teachers while integrating sustainable practices into the curriculum, (c) restructuring school routines and fostering shared activism to promote EE, while establishing a professional learning community, and (d) adopting a comprehensive approach to teaching, learning, and leading the implementation of EE in a coherent manner (Stevenson et al., 2014, as cited in Gan, 2021).

A powerful example comes from a first-hand account from Rathfern Primary School in London, England, headteacher Naheeda Maharasingam (2020). The school enacts valued-led leadership both by embedding the SDGs across the curriculum, and by enabling teachers and students to take social action to live within planetary limits. Her approach incorporates the principles of envisioning (imagining a better future), educating (integrating the SDGs into the curriculum), and interrupting (developing metacognition and embracing new perspectives). The school provides spaces for both teachers and students to become active citizens within the school and ambassadors for the community through weekly meetings and leadership roles.

However, there are challenges for school principals when attempting to flatten hierarchies and promote shared power and decision-making in schools. In a survey of 525 environmental teacher leaders participating in the Ontario EcoSchools initiative, Acton (2022) revealed that few school principals were willing to relinquish hierarchical authority. Not all teacher colleagues supported and encouraged collaborative work, and many encountered barriers related to school scheduling, release time, or other organizational factors. Teacher leaders also found it necessary but difficult to challenge established practices and tiring to continually explain the environmental crisis to other staff members. Most perceived the barriers to be the responsibility of the school principal. Therefore, leaders must ensure training and support that reduces such barriers (Kensler, 2022; Kensler & Uline, 2016).

#### **Context Relevance**

Another major challenge is reducing environmental excesses (the outer ring of Raworth's doughnut) primarily caused by the Global North, while poorer nations strive to meet the basic needs of their citizens (the inner ring). This does not imply that the Global North is devoid of significant social problems, nor does it suggest that the Global South should disregard environmental excesses. Rather, Raworth's (2017b) framework conceptually highlights some of the differences in priorities between regions.

Leadership at school and policy level plays a crucial role in addressing these goals in education. However, the quality of management in schools varies significantly at the country level, with higher variance than in other sectors (Bloom et al., 2015). While headteachers are expected to demonstrate leadership at the school level, the manifestation of this quality varies globally due to differences in school governance and broader cultures (Tulowitzki, 2013; Paletta et al., 2020; Hallinger, 2018). In many parts of the world, the selection process for school leaders lacks rigor and is based on checking general knowledge related to school system functioning, without specific initial or continuous training (OECD, 2019). Moreover, school leaders usually have an educational background as teachers, which means they can lack leadership and management competencies. Nevertheless, they are expected to, among other things, provide curriculum supervision, promote learning improvements, and establish community relationships (OECD, 2019). Even where more robust systems for leadership preparation exist, the theories and organizational challenges related to putting these systems into practice vary considerably across countries (Mincu, 2022).

Consequently, there are no one-size-fits-all blueprints for school leadership in the Anthropocene era as strategies and actions will depend on local issues and involve various actors both within and beyond the school. Nonetheless, school leadership development must emphasize building relationships and connections with a wider range of stakeholders.

## **Intelligent and Shared Accountability**

Given the broad and complex challenges ahead, leaders within the education system need indicators of progress toward desired goals at the macro (values) and exo-levels (national policy enactment), meso (organizational), and micro (individual, such as teacher-student) levels.

At the macro level, it is important to understand whether society, including the education system, is progressing toward sustainable forms of societal and economic well-being. This necessitates moving away from relying solely on GDP growth as the indicator used by governments in economic policymaking. Implicit in metrics such as Green GDP are notions of what constitutes a good life and a good society, including reducing inequality and poverty while fostering the development of useful technologies that enhance living conditions for humans and the environment.

Several accreditation bodies utilize sustainability metrics at the school level, such as the GreenSchools Certificate for the Middle East and North Africa region (Green Schools, 2025) and the UK's EcoSchools program (EcoSchools, 2025). Schools may also collaborate with partners or community efforts to create their own strategies. For instance, Oberlin College in the United States publishes metrics to track progress toward sustainability (Oberlin College & Conservatory, 2025) and aims to become carbon neutral by 2025. Their environmental dashboard not only focuses on their own campus but also aims to inspire the wider community. Increasingly, such dashboards could be adopted across schools, businesses, towns, and cities to scale up and integrate sustainability efforts.

These efforts raise the question of who holds whom accountable, and for what? Given the exploratory, contextualized and adapting nature of school approaches required in the Anthropocene era, the dependence on external, centralized bodies using fixed summative criteria to hold actors accountable must be reduced. Instead, moral and professional accountability must be created, using standards generated from within the profession, evaluated by the profession, and employing standards co-created by stakeholders involved in the evaluation. This should include peer-based evaluations between schools and school leaders (Godfrey, 2020). Given the global and interconnected nature of the challenges, transnational approaches to peer review, as seen in the lifelong learning sector (Gutknecht-Gmeiner, 2013), could be very useful.

#### **Conclusions**

We have argued that our four pillars model, inspired by pragmatism and socio-ecological agency, and operationalized by incorporating Raworth's Doughnut model (2017a) and the SDGs, represents a way for school leadership to respond intelligently and humanely to current threats and opportunities.

In the absence of strong policy-level leadership, school leaders have a moral and professional obligation take the initiative, both individually and collectively, to create environments that foster freedom and space for teachers to question, experiment, and innovate, and for students to engage in responsive, collaborative and empowering learning experiences. Moreover, they should encourage the utilization of diverse resources and opportunities beyond school premises, while utilizing local and global issues as valuable sources of learning and growth. Simultaneously, they must advocate for a broader and more flexible set of accountability criteria that currently restrict their autonomy, enabling them to respond more effectively. This movement should bridge ideologies and traditions, necessitating contextual sensitivity while focusing on global challenges.

These challenges also question the preparation of school leaders. We argue that the skill of establishing powerful networks of connections for learning, support, or "relational agency" (Edwards, 2005), is crucial. By sharing leadership within and beyond the school, new narratives of the Anthropocene can be shared and realized.

#### **Disclosure Statement**

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