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The Zenith Principle: Rethinking Education in the Age of AI and Global Uncertainty

Abstract

As artificial intelligence continues to reshape society and global crises intensify, traditional education systems are proving increasingly inadequate. Their hierarchical and rigid structures are ill-suited to address the needs of an interconnected and unpredictable world. In response, this article calls for a decisive shift away from dominant techno-rationalist frameworks. Drawing on the work of Eisner (2005), Rizvi and Lingard (2010), and Giroux and Bosio (2020), the author advocates for educational approaches rooted in curiosity, imaginative engagement, and critical relationality. Central to this vision is the *Zenith Principle*, inspired by Ames Van Meter's (1952) conception of the zenith as the highest expression of human potential – a potential now under threat from the encroachment of techno-rationalism. The *Zenith Principle* offers a conceptual lens through which to reclaim education as a creative and emancipatory endeavour, foregrounding the tension between optimal human interpretation and the expanding influence of technology. This paper will be of interest to educators and researchers grappling with how to balance technological advancement with human embodied creativity in educational contexts.

Keywords: *artificial intelligence, neoliberalism, educational transformation, creative agency, digitisation of education*

Zusammenfassung

In dem Maße, in dem künstliche Intelligenz die Gesellschaft umgestaltet und sich die globalen Krisen verschärfen, erweisen sich traditionelle Bildungssysteme als zunehmend unzureichend. Ihre hierarchischen und starren Strukturen sind für eine vernetzte und unvorhersehbare Welt ungeeignet. In diesem Artikel plädiert der Autor für eine Abkehr von den vorherrschenden techno-rationalistischen Konzepten. In Anlehnung an die Arbeiten von Wissenschaftler/-innen wie Eisner (2005), Rizvi und Lingard (2010) sowie Giroux und Bosio (2020) plädiert er für Lernansätze, die auf Neugier, phantasievollem Engagement und Relationalität beruhen. Dazu wird das Zenith-Prinzip eingeführt; inspiriert von Ames (1952) Konzeption des Zenits als Höhepunkt des menschlichen Potenzials – eines Potenzials, das, durch den Aufstieg der Techno-Rationalität zunehmend in den Schatten gestellt wird. In diesem Sinne bietet es eine konzeptionelle Linse, die sich auf die Überzeugung konzentriert, dass wir unsere einzigartigen menschlichen kreativen Fähigkeiten kultivieren müssen – oder riskieren, sie der Automatisierung zu überlassen (Marcuse, 2013). Das Zenith-Prinzip positioniert die Lernenden als interpretierende Akteur/-innen, die in der Lage sind, vorherrschende Narrative zu unterbrechen und Räume für Menschlichkeit, Widerstand, Gerechtigkeit und Erneuerung neu zu erschaffen.

Schlüsselworte: *Künstliche Intelligenz, Neoliberalismus, Bildungstransformation, Kreativagentur, Digitalisierung der Bildung*

Introduction

Across classrooms – the world over – familiar routines persist. Student desks are arranged in rows, the teacher vaguely anchored at the centre, and the enacted curriculum reflects a world that is rapidly vanishing. Despite accelerating developments in artificial intelligence (AI), deepening global crises, and widening inequalities, education continues to cling to outdated normative tropes (Sahlberg, 2020). In parallel, students are still expected to memorise facts they can now easily access and interpret with a click. They are asked to follow rules designed for a socio-political economy already in decline, attempting to fit school into their otherwise techno-saturated lives (Gilbert, 2024; Williamson, 2017).

This article proposes a departure from the rigid adherence to static norms. It begins with the power of reimagination and the challenges posed by techno-rationality. In today's miasmic social context, educators face a pivotal choice: to uphold techno-rationalist hierarchies – adapting to systems of measurement and algorithmic governance – or to embrace a more humane, relational, and justice-focused approach. The *Zenith Principle* offers a lens through which to view this difference and navigate the resulting tension. As automation advances and AI in-

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creasingly mimics human capabilities, a deeper question emerges: the issue is not merely how we use AI, but how we protect and cultivate what makes us human through coordinated educational practice. If education is to resist algorithmic control, it must first become a site of resistance, renewal, and enacted humane possibility.

Global Uncertainty and Educational Responses

The history of global uncertainty is marked by wars, pandemics, migrations, climate shifts, and economic upheavals – all of which have periodically unsettled the foundations of social life and compelled humanity to rethink its shared destiny. In the wake of such disruptions, a cosmopolitan ethos has often emerged as a counter-response: an ethical orientation grounded in the recognition of our interdependence beyond borders, cultures, and identities. From the Enlightenment's universalist ideals to the post-World War II establishment of institutions like the United Nations and UNESCO, education has been seen as a vehicle for cultivating global consciousness and solidarity. Educational responses to uncertainty – especially during times of crisis – have historically emphasized resilience, empathy, and cooperation. For instance, in the post-war reconstruction era, schools were positioned not just as sites of knowledge transmission, but as spaces for developing democratic values, intercultural understanding, and peace. Similarly, in the face of ecological and social crises today, Global Citizenship Education (GCE) and Education for Sustainable Development (ESD) promote a curriculum of care, critical reflection, and ethical engagement with the world.

In recent years, however, the nature of uncertainty has shifted in both scale and scope, increasingly shaped by complex systems and rapid technological change. AI, big data, and predictive analytics now promise to anticipate future behaviors, needs, and crises before they unfold. In education, this has translated into algorithmically driven assessments, personalized learning platforms, and adaptive technologies that purport to optimize student outcomes. These tools offer a sense of control over the unknown, reframing uncertainty as something to be managed through computation. Yet, this predictive turn also narrows the imaginative and ethical dimensions of learning, often privileging efficiency and risk mitigation over open-ended inquiry and critical engagement. Educational outlooks are thus increasingly shaped by a techno-rational logic that seeks to pre-empt the future rather than dwell meaningfully within its ambiguity. The cosmopolitan ethos – rooted in dialogue, pluralism, and moral imagination – risks being sidelined by a computational cosmology that reduces the complexities of global interconnection to patterns, probabilities, and outcomes. The task for educators today is to reclaim uncertainty not as a threat, but as a generative space for becoming – to teach students how to live with, think through, and respond ethically to a world in flux.

Techno-rationality and Education

Techno-rationality emerges from an educational perspective stemming from Enlightenment thought and the Industrial Revolution – reflecting a time when reason, science, and efficiency began to shape all facets of modern life. As rationalism became the dominant ethos of Western institutions, education systems increasingly mirrored mechanistic views of human learning, development, and productivity. At the core of this trajectory was the belief that education, like industry, could be engineered to produce predictable outcomes if properly systematized and measured.

In the early 20th century, techno-rationalist ideologies gained traction in the United States through the work of educational psychologists such as Edward Thorndike, who posited that learning could be scientifically measured and improved through conditioning and standardization (Thorndike, 1922). Thorndike's 'law of effect' laid the foundation for behaviourism, framing education as a stimulus-response process that could be controlled, optimized, and evaluated in mechanistic terms. This marked a departure from more relational, experiential views of learning espoused by thinkers like John Dewey, who emphasized democratic participation and learning through experience (Dewey, 1916).

As industrial capitalism expanded, education systems across the Global North began adopting factory-like models of schooling. Frederick Taylor's principles of scientific management, designed to optimize labour productivity, profoundly influenced curriculum design and school administration (Callahan, 1962). Taylorism introduced a new lexicon to education –input, output, efficiency, accountability – casting schools as efficient machines in which teachers delivered instruction, students absorbed content, and standardized tests measured progress.

The post-World War II era further entrenched techno-rationalist logics in education policy. Following the 1957 launch of Sputnik, the U.S. intensified its focus on science and mathematics, resulting in technocratic reforms and expanded governmental control over curricula (Ravitch, 2000). Within the Cold War context, technical expertise became a matter of national security, and schools were recast as engines of instrumental knowledge production. Education increasingly served economic and geopolitical ends, marginalizing the cultivation of civic, moral, or aesthetic sensibilities.

The neoliberal turn of the 1980s marked a pivotal point in the global diffusion of techno-rationalist education policy. Emerging from the economic reforms of Reagan and Thatcher, neoliberalism reframed education as a market commodity rather than a public good (Ball, 2003). Schools became service providers, students became consumers, and learning was recast as human capital investment. Policies such as the U.S. accountability movement and the U.K.'s New Public Management introduced high-stakes testing, performance metrics, and standardized curricula – tools grounded in data and quantification (Ozga, 2009). These mechanisms echoed what Habermas (1984) called the colonization of the lifeworld: the encroachment of technical rationality into the communicative, affective, and moral domains of education.

Global institutions like the OECD and World Bank amplified techno-rationalist ideals through mechanisms such as PISA, positioning education within competitive international rankings and pressuring governments to adopt measurable standards of success (Grek, 2009). While presented as objective and scientific, such assessments often ignored cultural, social, and historical contexts, promoting a technocratic model of education across diverse landscapes.

With the rise of digital technologies in the late 20th and early 21st centuries, techno-rationalism found new momentum. Edtech companies promised personalized learning, data dashboards, and AI-driven solutions to educational inequality (Williamson, 2017). While offering opportunities for differentiated instruction, these tools also introduced new forms of surveillance, control, and automation – shaping pedagogy, curriculum, and assessment, often without adequate scrutiny of their ideological assumptions.

Critics argue that the digital shift in education is far from neutral. As Selwyn (2016) contends, educational technologies are political artefacts, embedded in broader economic and governance structures. When digital tools prioritize analytics over reflection and imagination, they risk reducing learning to compliance, rather than curiosity. The logic of efficiency, predictability, and scale persists – echoing earlier paradigms and narrowing the scope of what counts as valuable learning.

The COVID-19 pandemic further accelerated education's digital transformation, ushering in platform-based learning and algorithmic governance (Zuboff, 2019). Emergency remote teaching, while necessary, became a tipping point – reshaping institutional norms around access, participation, and knowledge. Although techno-rationalist approaches offered continuity, they often overlooked issues of care, inequality, and embodiment. This context heightened the call for educational models that foreground complexity, creativity, and human connection.

In response, educators and theorists have turned to alternative traditions. From Dewey's democratic experimentalism, to Freire's (1970) critical pedagogy, to Hooks' (1994) engaged teaching, there is a lineage of thought emphasizing dialogue, imagination, and justice. These traditions challenge the dominance of techno-rationality and offer pathways toward more human-centered education. The question now is not whether the technical and the creative are in tension – they are – but whether they are nearing a critical turning point, a shared zenith.

The Future of Learning in an Age of AI

The tension between techno-global rationality and creative, embodied pedagogy marks a critical nexus. On one side lies the promise of AI – personalized, efficient, data-driven learning. On the other lies the risk: the erosion of imagination, ambiguity, and human connection. As algorithmic capabilities grow more pervasive, we must ask: what is lost when teaching becomes digitized?

D'Olimpio (2021) argues that human oriented arts-based education is not an enhancement, or a curious departure. The arts foster curiosity, interpretive thinking, and deep engagement with divergence. Yet within STEM-dominated systems, arts education remains marginalized. This marginalization, as D'Olimpio suggests, reflects a broader cultural problem: the devaluation of ambiguity, interpretation, and creativity (Burnaford et al., 2013). Dewey (1934) described aesthetic experience as heightened awareness. D'Olimpio extends this, showing how the arts support meaning-making, moral decision-making, and value reimagination. They also foster cosmopolitan sensibilities – encouraging ethical reflection, cross-cultural understanding, and comfort with uncertainty (Sant et al., 2018). In this way, the arts link interpretation to action.

As Eisner (2005) reminded us, the aesthetic is central to meaningful education because it invites abstraction and multiple interpretations. In today's world, teachers must blend technical knowledge with artistic insight. They must navigate digital disruption, global crises, and political change. Teaching is no longer simply transmission – it is curation, provocation, and excitation. As Freire (1996) insisted, educational work must be dialogical and liberatory.

A more recent manifestation of techno-rationality is the 'science of learning' – an interdisciplinary amalgam spanning psychology, neuroscience, anthropology, and robotics (Sawyer, 2006). While potentially valuable, this frame often complements techno-rational logics. Within this, cognitive load theory (CLT) has become dominant. It views learning as information processing and focuses on memory and cognitive capacity. But critics, such as Claxton (2024), argue that CLT neglects the emotional, social, and cultural dimensions of learning. It assumes an outdated, mechanistic view of the mind – treating it like a computer, reduced to inputs and outputs (Sweller, 2011). In doing so, it ignores how learning is shaped by place, identity, and experience. Claxton emphasizes that reducing learning to cognition is not just limited – it is dangerous. Effective education must recognize students' diverse challenges and capacities. It must engage with subjectivity and environment, not just content delivery and metrics.

The Zenith Principle

It is with the above in mind that I introduce the Zenith Principle. The *Zenith Principle* is a way to orient the present as both a peak of creative possibility and a moment of looming human centric decline. Ames (1952), drawing on Santayana, describing the zenith as a moment of flourishing – but one often overshadowed by conformity and control. Referencing Santayana, Ames writes that the 'all-round life' is rich in contemplation and harmony. But he warns that modern life pushes everyone along the same path, stripping individuality (Ames, 1952, p. 208). In another passage, he writes, „The ideal moves like the zenith above the head of the traveller' (ibid, p. 203). A notion suggesting human pathways are ever moving and interpretive.In educational terms, this means that predictive technologies – those that sort, cluster, and categorise – can block creative thresholds (Grimm, 2007; Salmon & Asgari, 2020). The *Zenith Principle* reminds us that as automation expands, the space for creative thresholding shrinks. A shrin-

kage, however, that isn't inevitable but promulgated by choice. Education can still foster contemplation, wonder, dialogue, and shared meaning as a non-peripheral epicentre. The question is whether we can preserve a human-oriented aesthetic education against a tide of techno-rationality..

Human Embodied Engagement and the Emergent Creative Learner

Today's creative learner is caught in a paradox. Systems demand innovation. Yet they often suppress creativity. Students are trapped in standardised systems, shaped by data, and searching for moments where imagination can survive. It is typical to witness, in today's classrooms, students using devices to interpret their worlds. Such devices offer a range of interpretative functions – ways of reading the world. However, embodied interaction with the Earth offers its own relationality. This planetary relation doesn't 'produce' but engenders interpretative experience. What this means can differ greatly from one individual to the next. However, the fact remains that human embodied interaction beyond techno-rationality invites transcendent unfolding. Not pre-packaged recipes for what meaning ought to be.

By contrast, AI offers efficiency and personalisation. But it lacks something essential: embodied engagement. Learning isn't just cognitive – as the science of learning might lead us to believe – it's sensory, social, and wildly emotional. AI mimics patterns. It optimises and predicts. But it doesn't emerge as play, struggle, or experiment like human planetary relations do. It doesn't feel wonder or wrestle with ambiguity and abstraction. True learning is embodied – in movement, art, conversation, and lived experience. These modes invite curiosity, receptivity and agency beyond the logic of efficiency.

As noted above, techo-rational frameworks prioritize outcomes, control, and competition (Marcuse, 2013; Palmer & Chandir, 2024). Whilst a bone-fide reality in student's lives there is a case to be made that such dynamic fracture a students' sense of self. They are torn between success and authenticity. Even AI-based education, often seen as democratic, can worsen inequality by promoting prosaic normativity. Sure, AI can create beauty. But it lacks ethical integrity, emotional nuance, and self-reflection. In algorithmic classrooms, students risk internalizing a mechanistic view of themselves. Real creativity comes not from consuming AI content but from engaging in rich, messy, and embodied learning. It is through dialogue, uncertainty, and sensory experience that learners become fully human. Robert Hughes (1980) once wrote „The greater the artist, the greater the doubt. Perfect confidence is granted to the less talented as a consolation prize.' (Hughes, 1980, p. 26). Hughes recognised that resonating art, well beyond its time, carried certain qualities. Namely that the artist, through their work, raised questions about their time in such subliminal ways as to open pathways to experience – a transcendence. Hughes would no doubt advocate, in today's learning, a certain scepticism toward the dominance of spectacle and instead promote sensibility and engagement. Reimagining education around creativity begins with this formulation of engagement. Learning is lived not viewed from afar. And, as Forst (2024) argues, justice in education can't rest on abstract ideals alone – it must attend to corporeal experiences, read them in real time and showcase deepening reflection.

The *Zenith Principle* invites us to resist the cold optimization of technicist rationality alone and instead cultivate human capacities like curiosity, intuition, and emotional depth – qualities no algorithm can replicate. Creativity, after all, emerges not from fixed answers but from uncertainty, contradiction, and surprise. Eisner (2002) reminds us that in art, as in teaching, form and content are inseparable; education, like art, must engage the senses, invite co-creation, and foster meaning-making. Allado-McDowell (2025) extends this aesthetic insight to AI, calling for 'prismatic relationships' between humans, non-humans, and artificial agents – an embrace of complexity, not replication. In this spirit, educators, like artists, must adapt to new tools without sacrificing what makes us human. Eisner's critique of outcomes-driven schooling aligns with Allado-McDowell and Bentivegna's (2022) concerns about rigid AI models, where the medium – paint, code, motion, words – shapes the learning that becomes possible. Education, then, is not data processing but a relational, embodied act. As Eisner (2002) puts it, „not everything knowable can be articulated in propositional form' (ibid, p. 56); learning is also gestural, rhythmic, and felt. It is sensory, ecological, and interdependent – a collective, ethical practice responsive to the world. Techno-rational education flattens this richness into outcomes and dashboards, threatening the joy, surprise, and messiness of truly human learning. Moreover, technology is reshaping not just learning but selfhood: as Longo (2019) observes, identity today is mediated by neural media – AI systems driven by big data. In schools, this manifests in predictive analytics and adaptive platforms that nudge students down narrow paths under the guise of personalization. The concept of 'embedded identity'[1] shows how such systems simplify complexity, often entrenching assumptions – like tagging a student as strong in math but weak in reading – without their awareness. McDowell (2025) cautions against 'AI slop,' where content is optimized for speed, not substance. In education, this appears as auto-marking, templated lessons, and curated feeds, which may save time but reduces learning to pre-digested knowledge, stripping it of exploration, dialogue, and critique. When AI determines what's 'most relevant, useful, fitting and resonant' it subtly narrows what counts as knowable (and yet to be known), and therein lies the urgency of defending education as a space for creativity, embodiment, and relational becoming.

The *Zenith Principle* urges us to resist the cold logic of technicist optimization and instead embolden distinctly human capacities – curiosity, intuition, emotional depth – qualities that no algorithm can truly emulate. Creativity does not arise from certainty, but from tension, ambiguity, and surprise. Eisner (2002) reminds us that in both art and teaching, form and content are inseparable: education, like art, should awaken the senses, invite co-creation, and enable the construction of meaning. Extending this aesthetic

insight into the realm of AI, Allado-McDowell (2025) calls for *prismatic relationships* between humans, non-humans, and artificial agents – relationships rooted not in replication but in complexity, interdependence, and creative emergence. In this light, educators – like artists – must adapt to new modes of practice without abandoning the sensuous, embodied dimensions that make teaching human. Eisner's critique of outcomes-based education resonates with the concerns of Allado-McDowell and Bentivegna (2022), who argue that rigid AI models, like artistic media, shape what kinds of learning are possible. Whether using paint, code, motion, or language, the medium is not neutral – it frames perception, interaction, and knowledge. Education, then, is not a matter of processing data but of engaging in relational, embodied acts of inquiry. As Eisner (2002) writes, 'not everything knowable can be articulated in propositional form' (p. 56); learning is also gestural, rhythmic, and affective. It is sensory, ecological, and co-constituted – a collective and ethical response to the world around us.

In the above I have sought to frame a tension. In doing so I don't seek to dispel the importance of technology and nor do I advocate a notion that the arts in the sole way to uncover humaness in education. However, by introducing the Zenith Principle I hope to open the possibility of a debate between two sperte horizons that will inevitably merge as one in the not too distant future.

Conclusion

We don't need to reject technology in education, but we must approach it with principled discernment. There is undeniable potential in using technology and AI to improve access, personalize learning pathways, and assist in differentiating instruction for diverse learners. Adaptive technologies, speech-to-text tools, and intelligent tutors can support inclusion, especially for students with learning differences or those in under-resourced settings. However, these affordances must remain subordinate to human and ethical priorities – not driven by the cold efficiencies of automation or the economic imperatives of edtech markets. The real challenge lies not in the mechanics themselves, but in the logic that governs their deployment. When used merely to streamline or scale, AI risks reinforcing reductive notions of learning as a process of input, output, and optimization.

This is why AI literacy is no longer optional; it must be a central aim of contemporary education. Just as media literacy became vital in the age of mass communication and digital culture, students today must be equipped to understand and critique the algorithmic systems shaping their realities. This includes recognizing how AI models are trained, how they make inferences, where bias enters, and what remains outside their computational grasp – emotions, ethics, and the ineffable dimensions of being human. More than technical skills, this literacy requires philosophical and civic insight: a capacity to question whose interests are served, what is being omitted, and how power operates beneath the interface. Students must become reflective agents, not passive users – capable of imagining alternative technological futures that align with justice, plurality, and ecological care. Amid these transformations, the role of the teacher becomes even more vital – not diminished, but re-centered. While AI may assist with administrative tasks or generate learning materials, it cannot replace the uniquely human capacities that educators embody: empathy, ethical judgment, attunement to context, and the capacity to foster trust and wonder. Real learning is dialogical and often messy, unfolding through unexpected questions, meaningful mistakes, and the slow work of building relationships. The push toward AI-driven standardization threatens to erase these generative interruptions. It smooths over the friction where thought is born. To protect the soul of education, we must resist this flattening and fight to preserve the wild, unpredictable, and collective spirit of the classroom – where knowledge is not delivered, but co-created; where shared meaning, not metrics, is the true reward. Education must remain a deeply human endeavor – supported, perhaps, by techno-rationality, but never defined by it.

Notes

1 Embedded identity in education refers to the idea that who we are as learners – and how we come to know – is always shaped through our relationships, cultures, histories, and environments. It calls for pedagogies that see and honour that complexity, rather than reducing identity to static categories or neutral abstractions.

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