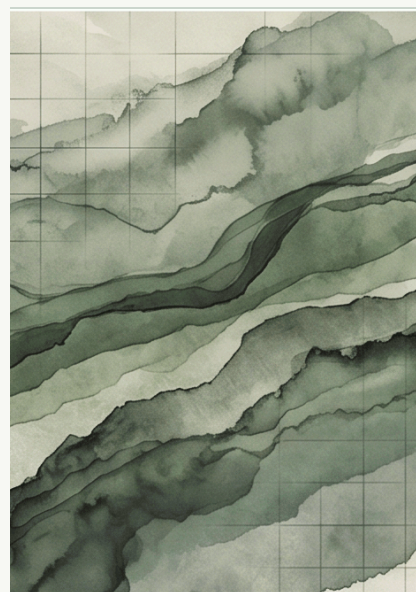


10

LEARNING TO TRANSFORM TOGETHER

Planetary futures depend on transforming the systems and conditions through which societies learn.



KEY MESSAGES

- Educational transformation unfolds across interconnected scales and depths—from everyday practices, technologies, and institutions to the purposes, knowledge systems, and worldviews that shape them. Change in any one dimension can enable, constrain, or redirect change in others.
- Educational transformation cannot be fully predicted, controlled, or reduced to a single pathway. It depends on creating conditions for collective discernment, experimentation, contestation, reflection, reciprocal learning, and adaptation as contexts change.
- People and relationships transform educational systems. What change becomes possible depends on agency, voice, shared decision-making, and enabling conditions, including protected spaces for freedom of expression, adequate financial and human resources, and supportive working conditions.

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INSIGHT

Planetary crises are commonly understood as failures of energy, economic, food, health, ecological, social, and political systems. Yet they also expose the limits of how societies organize knowledge, coordinate collective action, and imagine possible futures (Meadows, 2008). Scientific understanding about climate change, biodiversity loss, and ecological degradation continues to expand, while the capacity to translate that knowledge into coordinated action remains limited. This paradox is increasingly recognized as one of the defining challenges of planetary crises (Glavovic et al., 2022). The widening gap between knowledge and action raises a fundamental question about collective learning: how societies interpret changing conditions, deliberate across differences, coordinate actions, and adapt over time. However, this gap is not primarily a failure of information. It is produced by how power and material interests shape which knowledges are acted upon: economic arrangements that reward extraction and short-term returns, actors with a stake in delaying change, unequal influence over public decision-making, and institutions designed to reproduce existing practices. This gap is also shaped by institutional inertia, conflicting interests, cultural assumptions, and the emotional and relational conditions that influence whether people engage with or retreat from what is known.

Bridging knowledge and action requires more than additional information. Learning can reproduce or even strengthen existing assumptions and harmful arrangements, but it can also become a force for transformation. Its transformative potential lies in bringing those assumptions into question and reshaping how problems, purposes, and possibilities are understood through reflection, dialogue, and action, including attention to the power relations that shape whose knowledge counts and whose realities become visible (Bateson, 1972; Freire, 1970; Quijano, 2000). What distinguishes transformative learning from critical questioning alone is not its radicalism but its responsibility and accountability: transformative learning examines its own assumptions, remains open to evidence and to those affected, and can be revised through exchange across different visions of what education for planetary futures requires. This kind of transformative learning builds collective capacity to question what is taken for granted, negotiate different understandings, and change what becomes imaginable and possible for collective action.

For such transformative learning to become consequential, the systems and conditions through which societies learn must also change. Practices and institutional arrangements matter, but so do the incentives, power relations, feedback processes, and underlying logics that organize them (Faul & Savage, 2023; McCowan, 2023, 2025; Meadows, 2008; Sterling, 2001, 2024). Reforms can alter visible practices while leaving deeper logics intact. Worldviews, purposes, policies, and practices shape one another recursively. Worldviews inform educational purposes; purposes shape policies and institutional arrangements; and these organize everyday practice. Yet change also travels in the other direction: new practices can expose the limits of existing policies, institutional experimentation can unsettle established purposes, and both can reshape how education itself is understood. Transformation is therefore less a sequence of reforms than an ongoing reorganization of relationships across different parts and depths of the system.

Established cultural norms, institutional logics, and incentives can absorb or redirect change, while new relationships and practices can open previously difficult-to-imagine possibilities. Transformation may involve simultaneous processes of decline, transition, and emergence as established arrangements lose legitimacy or capacity and locally grounded alternatives develop through relationships and collective action. Transformation therefore involves creating new possibilities while unlearning inherited assumptions and responsibly releasing practices and arrangements that no longer serve planetary futures, with care for those affected by their decline (Machado de Oliveira, 2021; Silova et al., 2025).

These transitions are also shaped by historically constituted relations of power that influence whose knowledge is recognized, whose interests carry weight, and whose ways of knowing are marginalized (Quijano, 2000). What emerges, what is sustained, and what is allowed to decline depend on whose knowledge and ideas receive recognition and support, whose interests and losses are taken seriously, how the interests of future generations and the more-than-human world enter decision-making, who controls resources and institutional authority, and who participates in deciding what comes next. Systems transformation is therefore not only a question of how change happens, but of who has the power to shape its direction.

Educational systems are constituted, sustained, and transformed by the people and relationships within them. Educators working across all levels, from early childhood to higher to higher and adult education, and across formal, non-formal, community-based, and digital or hybrid settings, bring essential knowledge of learners, institutions, communities, and everyday practice to processes of change. This includes teachers, teaching assistants, faculty in tenured and contingent positions, technical and vocational instructors, community and youth educators, and the support staff who make learning possible. Their capacity to shape transformation depends on secure employment, professional autonomy, academic freedom, collective voice, supportive working conditions, and meaningful participation in decision-making. Teacher unions and other organizations of educators and researchers can extend this agency through social dialogue and collective action. Adequate staffing, time, resources, professional learning, safe and climate-resilient learning environments, and sustained public financing provide the material conditions through which transformation can take root. Learners, families, communities, and knowledge holders must likewise participate meaningfully in decisions affecting their lives, institutions, and futures.

Participation, in turn, raises questions of knowledge and authority. Transforming educational systems requires learning with multiple ways of knowing, relating, and organizing, including those grounded in Indigenous, local, and relational knowledge traditions and relationships with land and the more-than-human world (de la Cadena & Blaser, 2018; Escobar, 2018). Crucially, this means respecting the authority of communities and knowledge holders to determine how their knowledge is represented, shared, and used.

Ultimately, transforming education means changing the social, institutional, and ecological relationships and conditions through which societies learn. Doing so can expand collective capacity to imagine, negotiate, and sustain more peaceful, just, and regenerative planetary futures. Education is therefore not simply another sector requiring reform; it is part of the collective infrastructure through which societies navigate uncertainty, negotiate difference, and shape what futures become possible.

10 Pathways for transformation

There is no single pathway to transformation. The entry points below offer possibilities for governments, educational institutions, communities, funders, and civil society to begin reshaping the systems through which societies learn.

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- 01 Reconsider educational paradigms and purposes.** Create participatory processes for examining the values, worldviews, and assumptions that shape education and for redefining its purposes in relation to social justice, collective wellbeing, and ecological responsibility.
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- 02 Respond critically to openings for change.** Periods of crisis, institutional change, policy reform, leadership transition, and technological disruption can unsettle established assumptions, but they can also reinforce existing inequalities. Use these moments for inclusive deliberation about educational purposes, responsibilities, and possibilities, and to identify, connect, and support emerging alternatives.
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- 03 Create enduring spaces for collective learning.** Support sustained collaboration among educators, learners, policymakers, Indigenous communities, other knowledge holders, researchers, and civil society. Establish feedback processes through which their knowledge and experiences inform institutional decisions, while changes in governance, policy, and practice create conditions for deeper learning and collective action. Respect different forms of knowledge and authority while enabling experience and evidence to inform continuous institutional learning.
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- 04 Support contextual experimentation and reciprocal learning.** Invest in place-responsive innovation, continuous reflection, adaptive feedback, and exchange across contexts. Enable approaches to develop through experience and refinement without requiring them to converge on a single standardized model.
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- 05 Align incentives and enabling conditions with long-term purposes.** Redesign funding, assessment, accountability, and governance to support long-term educational purposes and planetary wellbeing rather than privileging short-term performance. Protect professional autonomy, academic freedom, and collective voice, and ensure adequate staffing, supportive working conditions, and the time and resources required for sustained transformation.
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ILLUSTRATIVE PATHWAYS IN PRACTICE

The following examples illustrate how educational transformation can emerge when purposes, relationships, knowledge, governance, and practices are reconsidered together. Rather than offering models for replication, they illustrate contextually grounded possibilities for learning systems organized around reciprocity, responsibility, collective action, and ecological wellbeing.

Building Long-Term Wellbeing into the System: Wales's Future Generations Framework

Responsibility to those yet to come becomes systemic when it is embedded in institutional purposes and public decision-making. Wales's *Well-being of Future Generations Act 2015* places a legal duty on specified public bodies to pursue seven interconnected wellbeing goals, including resilience, health, equality, cohesive communities, cultural vitality, and global responsibility. Education is explicit within this framework: the "A Prosperous Wales" goal includes developing a skilled and well-educated population, positioning education as integral to the country's long-term wellbeing. The Act requires public bodies to consider long-term consequences, prevent future harm, integrate policy areas, collaborate across institutions, and involve people affected by their decisions. A Future Generations Commissioner supports this work. The framework demonstrates how governance can connect education with wider social, cultural, economic, and ecological priorities while shifting institutional attention beyond short-term performance. It invites education systems to consider how decisions about curriculum, assessment, infrastructure, technology, staffing, and funding will affect learners, communities, and ecosystems across generations.

Learn more

Welsh Government. (2025). *Well-being of Future Generations (Wales) Act 2015: The essentials*.

<https://www.gov.wales/well-being-future-generations-act-essentials-html>

Krznaric, R. (2020). *The good ancestor: How to think long term in a short-term world*. W. H. Allen.

Krznaric, R. (n.d.). *Good Ancestor resources*. <https://www.romankrznaric.com/good-ancestor/resources>

University of the Forest: Indigenous-Led Learning for Regenerative Futures

The University of the Forest is a Huni Kui centre of knowledge and intergenerational learning on the banks of the Envira River in Acre, in the Brazilian Amazon. Rooted in Huni Kui customary laws, oral traditions, and relational sciences and technologies, learning is organized around responsibilities to communities, the forest, and human and more-than-human beings. Huni Kui leaders have worked in collaboration with the Gesturing Towards Decolonial Futures collective to develop an international digital campus organized around five interconnected faculties: Respect, Reverence, Reciprocity, Responsibility, and Regeneration. Rather than transferring Indigenous knowledge into conventional universities, the initiative invites institutions and learners to reconsider assumptions of separation, superiority, control, and extraction and to develop relationships grounded in accountability and repair.

It demonstrates how educational transformation can extend beyond adding new content to encompass changes in educational purpose, authority, relationships, and understandings of who teaches, who learns, whose knowledge carries responsibility, and to whom education is accountable.

Learn more

University of the Forest. (n.d.). *University of the Forest*. <https://universityoftheforest.org/>

Stein, S., & de Oliveira Andreotti, V. (2025). Repurposing the university in times of social and ecological breakdown: From the ivory tower to the nurse log. *Canadian Journal of Education/Revue canadienne de l'éducation*, 48(1), 120–144. <https://doi.org/10.53967/cje-rce.7069>

Gesturing Towards Decolonial Futures. (n.d.). *Forest walks: Unlearning colonial habits of being*. https://universityoftheforest.org/wp-content/uploads/2024/02/Forest-Walks-june-5-Single-Pages_compressed-1.pdf

Reimagining Higher Education: Alternative Institutional Pathways

Higher education institutions and learning communities in different contexts are experimenting with educational purposes, structures, and practices oriented toward social and ecological regeneration. Gaia University International uses transformative action learning to connect learner-designed community projects with mentoring, peer learning, regenerative design, and critical reflection. Universidad Intercultural de las Nacionalidades y Pueblos Indígenas Amawtay Wasi, a public, intercultural, and community-based university in Ecuador, centres Indigenous knowledge systems, territorial relationships, and learning in, with, and for communities. Black Mountains College in Wales brings together arts, ecology, systems thinking, practical land-based education, and community resilience. These initiatives demonstrate contextually distinct ways of reconsidering educational purpose and institutional form: where learning happens, who directs it, whose knowledge carries authority, how learning is demonstrated, and how institutions relate to communities, territories, and the living world. Together, they show how systemic transformation can grow through institutions willing to reorganize learning around participation, reciprocity, ecological responsibility, and action.

Learn more

Gaia University International. (n.d.). *A new vision of higher education*. <https://gaiauniversity.org/>

Universidad Intercultural de las Nacionalidades y Pueblos Indígenas Amawtay Wasi. (n.d.). *Universidad Amawtay Wasi*. <https://uaw.edu.ec/>

Black Mountains College. (n.d.). *Learning to live in a warming world*. <https://blackmountainscollege.uk/>

Connecting Technology, Ancestral Knowledge, and Territorial Learning: Equipe da Bà

In the Mëbêngôkre-Kayapó territory of the Brazilian Amazon, Equipe da Bà brings together ancestral knowledge, intergenerational learning, and contemporary conservation technologies. In 2024, more than 40 Mëbêngôkre participants from 13 villages combined forest-based learning with the use of trail

cameras, nature photography, and drones. Elders shared knowledge of medicinal plants, animal tracks, and culturally significant places, while young participants developed monitoring skills and gained experience as guides in an intercultural ecotourism program. The initiative shows how transformation can unfold across interconnected dimensions: learning strengthens relationships between generations; technology supports territorial monitoring; Indigenous knowledge guides its use; and community organizations connect education with cultural continuity, livelihoods, and forest protection. Rather than treating tradition and innovation as opposites, Equipe da Bà brings them together in support of community priorities.

Learn more

Associação Floresta Protegida. (2024). *Equipe da Bà: Aliança entre tecnologia, conhecimento e saberes ancestrais para conservar a Floresta Mëbêngôkre*. [Read more](#)

Garcia, B., Morgan, E. A., Aruch, M., et al. (2024). Large-scale forest protection: The successful case of the Kayapo people in the Brazilian Amazon. *Regional Environmental Change*, 24, 148. <https://doi.org/10.1007/s10113-024-02304-6>

REFERENCES

Bateson, G. (1972). *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. Chandler Publishing Company.

de la Cadena, M., & Blaser, M. (Eds.). (2018). *A world of many worlds*. Duke University Press. <https://doi.org/10.1215/9781478004318>

Escobar, A. (2018). *Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds*. Duke University Press. <https://doi.org/10.1215/9780822371816>

Faul, M. V., & Savage, L. (Eds.). (2023). *Systems thinking in international education and development: Unlocking learning for all?* Edward Elgar Publishing. <https://doi.org/10.4337/9781802205930>

Freire, P. (1970). *Pedagogia do oprimido*. Paz e Terra.

Glavovic, B. C., Smith, T. F., & White, I. (2022). The tragedy of climate change science: Climate scientists' moral responsibility. *Climate and Development*, 14(9), 829–833. <https://doi.org/10.1080/17565529.2021.2008855>

Machado de Oliveira, V. (2021). *Hospicing modernity: Facing humanity's wrongs and the implications for social activism*. North Atlantic Books.

McCowan, T. (2023). The climate crisis as a driver for pedagogical renewal in higher education. *Teaching in Higher Education*, 28(5), 933–952. <https://doi.org/10.1080/13562517.2023.2197113>

McCowan, T. (2025). *Universities and climate action*. UCL Press. <https://doi.org/10.14324/111.9781800088290>

Meadows, D. H. (2008). *Thinking in systems: A primer*. Chelsea Green Publishing.

Quijano, A. (2000). Colonialidad del poder, eurocentrismo y América Latina. In E. Lander (Ed.), *La colonialidad del saber: Eurocentrismo y ciencias sociales. Perspectivas latinoamericanas* (pp. 201–244). CLACSO.

Silova, I., Komatsu, H., & Rappleye, J. (2025). Unlearning development: Education in the era of planetary emergency. In M. V. Faul (Ed.), *Transforming development in education: From coloniality to rethinking, reframing and reimagining possibilities* (pp. 19–43). Edward Elgar Publishing. <https://doi.org/10.4337/9781035337798.00007>

Sterling, S. (2001). *Sustainable education: Re-visioning learning and change*. Green Books.

Sterling, S. (2024). *Learning and sustainability in dangerous times: The Stephen Sterling reader*. Agenda Publishing. <https://doi.org/10.1017/9781788216920>

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