



# Transition to a Circular Pedagogy

## Transizione verso una pedagogia circolare

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### ABSTRACT

This editorial introduces the special issue 24(S1) “Transition to a Circular Pedagogy”, developed within the EurAdice project. Starting from the circular economy as a critique of linear models of production and consumption, it argues that circularity must also be understood as a cultural, territorial and educational question. The contributions gathered in the issue examine circular pedagogy through situated African practices, curricular reinterpretation, school-based experimentation, energy transition, intercultural dialogue, urban pedagogy and childhood education. Together, they show that circular pedagogy is not the simple application of circular-economy principles to education, but a way of making visible the relations among resources, histories, places, knowledge, care and civic responsibility.

Questo editoriale introduce il numero speciale 24(S1) “La transizione verso una pedagogia circolare”, sviluppato nell’ambito del progetto EurAdice. A partire dall’economia circolare come critica dei modelli lineari di produzione e consumo, il testo sostiene che la circolarità debba essere compresa anche come questione culturale, territoriale ed educativa. I contributi raccolti in questo numero esaminano la pedagogia circolare grazie alle prospettive innovative offerte da: pratiche africane situate, reinterpretazione curricolare, sperimentazione scolastica, transizione energetica, dialogo interculturale, pedagogia urbana e formazione dell’infanzia. Nel loro insieme, mostrano che la pedagogia circolare non consiste nella semplice applicazione dei principi dell’economia circolare all’educazione, ma in un modo di rendere visibili le relazioni tra risorse, storie, luoghi, saperi, cura e responsabilità civica.

#### KEYWORDS

Circular pedagogy, European African Diaspora, Inclusive circular economy  
Pedagogia circolare, Diaspora Africana in Europa, Economia circolare inclusiva

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## 1. Introduction

The concept of the circular economy has roots in several schools of thought that emerged during the 1960s, a period of profound social, technological and environmental transformation. It was later developed more systematically by environmental economists such as Pearce and Turner in the 1980s. The notion goes beyond the recovery of waste and is now situated within an international context marked by growing mobilisation around climate change, resource depletion and the need to rethink dominant models of production and consumption. ADEME defines the circular economy as:

“An economic system of exchange and production which aims to increase efficiency in the use of resources and reduce our impact on the environment. It involves decoupling resource consumption from the growth of gross domestic product (GDP), while ensuring a reduction in environmental impacts and an increase in well-being” (ADEME, 2018, p. 2).

The circular economy therefore challenges the dominant neoliberal model commonly described as the linear economy, based on the sequence “extract, produce, consume, discard”. It questions the overexploitation of natural resources and offers one possible response to the Earth’s limited capacity to regenerate the resources necessary for human life. At the same time, circularity cannot be reduced to an optimistic rhetoric of reuse, recycling or recovery. It must also address the more difficult questions raised by polluted soils, hazardous waste and the materials that require extraction, treatment or remediation before they can safely re-enter productive cycles. A circular economy that merely displaces these issues would risk reproducing some of the very externalities it claims to overcome.

Today, the circular economy is the subject of public policies, regulations, strategies, programmes and projects in numerous countries and international institutions, including the European Union, China, Japan, Chile, France, Brazil and Colombia. On the conceptual and theoretical level, there is also a growing body of literature on the circular economy. However, less attention has been devoted to the relationship between the circular economy and migration, human rights, intercultural dialogue or the encounter between civilisations. This is a decisive limitation, because circularity is never only a technical or economic matter. It is also embedded in cultures, territories, social practices and forms of collective life. We are therefore faced with a circular economy that must be interculturalized (Elamé, 2022). The recent emergence of work on circular cities (Vialleix & Mariasine, 2019; Archambault & Hervet, 2020) points in a similar direction, since circular urbanism requires territorial organisation, participation and new ways of making human settlements sustainable.

The European Union has begun to organise its public policies around the transition from the linear to the circular economy. This transition requires eco-

nomical growth and the depletion of natural resources to be considered together, rather than as separate policy domains. It concerns both industrialised and developing countries, although the conditions, constraints and resources available to each context differ substantially. The circular economy cannot therefore be conceived as a single model to be transferred unchanged from one region of the world to another. Its educational, social and institutional forms must be interpreted in relation to local histories, material cultures, ecological pressures and existing civic practices.

In many African contexts, the difficulty lies less in the absence of circular practices than in their institutional recognition, scaling and connection to formal policy frameworks. African countries are rich in informal circular economy initiatives. These civic practices concern the circulation of materials and feed into the socio-spatial transition towards more institutionalised forms of circular economy. They are local and urban initiatives born from the social engineering of communities and traditions, and they are not always dependent on state roadmaps or local-authority planning. At the same time, dynamic exchange networks capable of supporting broader forms of cooperation, including industrial symbioses, remain limited in many contexts (Diemer, 2016). The challenge is therefore not simply to introduce circularity, but to recognise, connect and strengthen practices that already exist while making them visible within educational, political and economic systems.

For this reason, collaboration between Europe and Africa in the field of the circular economy should not be understood only in industrial or technological terms. It also requires committed and dynamic human capital, educational mediation and the capacity to create shared frameworks without erasing local knowledge. Initiatives supporting circular-economy transitions between Africa and the European Union are possible when public policy, research, education and civic practice are brought into dialogue. However, the transition from the linear to the circular economy will inevitably encounter obstacles on both sides, including institutional fragmentation, unequal resources, weak coordination, cultural misunderstandings and the risk of imposing technical solutions without sufficient attention to social contexts.

This special issue originates from the project “*European African Diaspora for an inclusive circular economy*”, acronym **EurAdice**, No. 101102547, Call: *ESF-2022-SOC-INNOV*, funded by the European Commission and coordinated by the University of Padova. It explores the transition to a circular pedagogy by bringing together theoretical, intercultural, curricular and situated contributions. Its purpose is not simply to apply the circular economy to education, but to ask how education can make circularity intelligible, practicable and socially meaningful across different contexts. In this sense, circular pedagogy is understood as a space where ecological transition, intercultural dialogue, local knowledge and educational practice may be placed in relation.

## 2. Contributions to the special issue

### 2.1. Paradigms

**Elamé** (2026) opens the *Paradigms* section by giving circular pedagogy its explicit conceptual architecture. In *Circular Pedagogy: Challenges and Pillars*, the transition from the linear model of “extract, produce, consume, discard” to a circular economy becomes the basis for a wider educational reorganisation. The article defines circular pedagogy as a socio-constructivist approach that prepares learners to understand product and service life cycles, reduce waste, and treat end-of-life materials as secondary raw materials rather than refuse. Its contribution is foundational because it identifies the theoretical conditions under which circular economy principles can become pedagogical principles: cross-curricular learning, intercultural responsibility, cognitive justice, responsible citizenship, collective competences, decarbonised education and institutional responsibility. The eight pillars proposed by the article — eco-design, industrial ecology, functional economy, waste reduction, repair, repurposing, reuse and recycling — provide the issue with a vocabulary through which the later contributions can be read. They clarify that circular pedagogy is not only a matter of environmental awareness, but a structured educational response to the cultural, institutional and behavioural persistence of the linear economy.

**Macagno** (2026) develops this epistemological section by addressing a foundational theoretical question: what does circularity become when understood as an intercultural principle rather than strictly an economic model? In his *Intercultural Pedagogy and the Circular Educational Paradigm*, the Euro-African framework is translated into a model of dialogue, co-construction, and epistemic justice. The article rejects a linear movement of knowledge—from “expert” to “passive learner,” or from one geopolitical centre to another—treating intercultural pedagogy instead as a practice where meaning is generated through relationship. Here, circular pedagogy becomes a paradigm in the substantive sense: knowledge circulates, is negotiated, and returns transformed through encounter. The proposed educational laboratories and logbooks are not neutral techniques; they are ways of organizing learning so that diverse cultural and territorial experiences can enter a shared space without being hierarchically ordered.

**Calabria** (2025) shifts the discussion toward the urban scale in *Circularity and Relationships for the City: Living, Educating, Promoting*. The article views the city not as a neutral container for policy or a technical system to be optimized, but as a living environment of resources, memories, and forms of belonging. The three verbs in the title—*living, educating, and promoting*—provide a civic grammar for circularity. To live is to inhabit urban space responsibly; to educate is to form citizens who recognize interdependence; and to promote is to sustain participation and shared care. This perspective prevents the circular economy from being reduced to waste management or technical efficiency. Instead, circularity becomes a matter of social bonds, cultural mediation, and the “bottom-up” inculturation of sustainability.

Calabria’s work sits at the intersection of ecological transition and urban pedagogy, suggesting that circular cities are produced not by infrastructure alone, but by communities capable of learning and cooperating.

**Cappiello** (2026) offers a plausible conclusion by grounding circular pedagogy in the material world of childhood. In her *Telling the Stories of Objects to Learn to Care for Them* the focus is on discarded objects and the narratives children attach to them. This approach translates the critique of the linear economy into a concrete, affective educational experience. The cycle of “extract, produce, consume, discard” is challenged through the practice of slowing down, observing, and narrating. The article also emphasizes the inclusive potential of circular pedagogy, as creative reuse allows pupils with diverse cognitive and linguistic profiles to participate in the same process through varied forms of contribution. The classroom thus becomes a small circular community where environmental awareness is tied to imagination and mutual recognition. Cappiello’s contribution demonstrates that the transition to circular pedagogy is as much symbolic and relational as it is institutional: it begins when children learn that objects—like communities—can be re-seen, repaired, and returned to meaning.

### 2.2. Inhabiting the World

**Ngong Atembone** (2026) opens this section by exploring how circular pedagogy might be integrated into the formal organization of school knowledge. In *Taking the Circular Economy into Account in History Teaching in Cameroon*, the circular economy is not merely an external theme appended to the curriculum, but a lens through which history teaching itself is reconsidered. The article engages with a notable tension: while the Cameroonian lower-secondary history curriculum pursues cultural, civic, and intellectual aims, it offers little explicit space for ecological transition or circular thinking. Ngong Atembone’s contribution is particularly significant in demonstrating that circularity need not rely solely on contemporary policy vocabularies; it can be found within local historical experiences of foresight, reuse, and material prudence. From this perspective, history teaching serves to reconnect pupils with forms of collective life where continuity and resource care were already educationally significant. This proposal for “eco-history” is both curricular and epistemic, inviting schools to treat African historical temporalities not as static heritage, but as active resources for shaping modern ecological citizenship.

**Ngaha Ngaha and Tchuikoua** (2026) shift the focus from curricular reinterpretation to pedagogical implementation. The resulting contribution—titled *Design and Pilot Implementation of TRIKIDS*—addresses the practical frameworks required for circularity to become a staple of daily school life. The TRIKIDS method is presented as a progressive, locally adaptable approach to waste sorting in the schools of Yaoundé. Beyond the scale of the pilot, the article demonstrates how children and teachers can become active participants in a “civic chain of circularity.” Through play, competition, and tactile engagement,

waste is transformed from an abstract environmental concern into a tangible object of classification and public responsibility. However, the physical prototype also highlights practical constraints regarding scalability and adaptation to diverse local sorting systems. Consequently, the proposed digital development of TRIKIDS is presented not as a detached technological supplement, but as a continuation of the same pedagogical logic: making circular education more accessible, transferable, and responsive to local contexts.

Mewassi Aboui, Voundi, and Toksia (2026) extend the section's scope by linking circular pedagogy to energy transition, entrepreneurship, and territorial development. Their *Educating and Raising Awareness of the Circular Economy in School and University Settings* examines ecological charcoal produced from organic waste as both a material innovation and an educational tool. The study is grounded in a setting where waste management, energy insecurity, and urban growth intersect. In this context, the eco-charcoal sector serves as a learning environment where schools, universities, and green enterprises interact. Workshops and internships connect waste recovery with energy use and professional orientation. The initiative's value lies not only in the transmission of technical information but in how it situates learners within a local transformation chain: organic waste becomes fuel, technical practice becomes knowledge, and knowledge creates pathways toward employment or enterprise. This contribution provides the section with a broader socio-economic perspective, showing that inhabiting circularity also involves navigating local transitions in energy, labour, and urban ecology.

### 3. Conclusions

Taken together, the contributions collected in this special issue suggest that circular pedagogy cannot be understood as the simple educational translation of the circular economy. Its object is broader and more demanding. It concerns the ways in which schools, universities, cities and local communities learn to recognise relations among resources, histories, places, bodies, objects and forms of knowledge. The cases discussed here show that circularity becomes educationally meaningful when it is situated: in the history curriculum of Cameroon, in pupils' practices of waste sorting in Yaoundé, in the eco-charcoal initiatives of Douala, in Euro-African educational dialogue, in urban relationships and in the narrative transformation of discarded objects in primary school. In each case, circular pedagogy emerges not as a fixed method but as a way of making visible connections that linear models tend to separate: production and care, waste and learning, memory and transition, local knowledge and public policy, technical innovation and intercultural responsibility.

This also clarifies the main implication of the issue. A transition to circularity that remains confined to infrastructure, regulation or market innovation is structurally incomplete. It requires educational mediation capable of forming subjects who can interpret, inhabit

and transform the systems in which they live. Such mediation must avoid two symmetrical errors: treating circular economy models as universally transferable technical solutions, and romanticising local practices as if they did not require institutional support, critical scrutiny and conditions for scaling. Circular pedagogy occupies the space between these risks. It asks how existing practices can be recognised without being appropriated, how local knowledge can enter formal education without being reduced to folklore, and how ecological transition can become part of ordinary civic, curricular and relational life. The task opened by this special issue is therefore not only to teach circular economy, but to educate towards forms of judgement, participation and co-responsibility through which circularity may become socially and culturally practicable.

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