

# ENVIRONMENTAL RESPONSIBILITY AND EDUCATIONAL PRACTICES: PATHWAYS OF AWARENESS THROUGH ECOLOGICAL EDUCATION IN NATURE

## RESPONSABILITÀ AMBIENTALE E PRATICHE EDUCATIVE: PERCORSI DI CONSAPEVOLEZZA ATTRAVERSO L'EDUCAZIONE ECOLOGICA IN NATURA



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### ABSTRACT

This paper investigates the pedagogical value of nature-based education as a formative tool capable of promoting ecological awareness, environmental responsibility, and active citizenship. Through an in-depth analysis of outdoor educational contexts and their methodological applications (experiential workshops, school gardens, immersive activities), the study highlights how such practices represent not mere alternatives to traditional teaching, but authentic educational paradigms founded on meaningful relationships between the individual, the environment, and the community.

Furthermore, the urgency of integrating environmental education transversally into school curricula is emphasized, through interdisciplinary, participatory approaches rooted in everyday life

Il contributo indaga il valore pedagogico dell'educazione in natura come dispositivo formativo in grado di promuovere consapevolezza ecologica, responsabilità ambientale e cittadinanza attiva. Attraverso un'analisi approfondita dei contesti educativi outdoor e delle loro declinazioni metodologiche (laboratori esperienziali, orti scolastici, attività immersive), il lavoro evidenzia come tali pratiche costituiscano non semplici alternative alla didattica tradizionale, ma autentici paradigmi educativi fondati su relazioni significative tra individuo, ambiente e comunità. Viene, inoltre, sottolineata l'urgenza di integrare l'educazione ambientale in modo trasversale nei curricoli scolastici, attraverso approcci interdisciplinari, partecipativi e radicati nella quotidianità.

### KEYWORDS

Nature-based education; Outdoor education; Ecological awareness; Sustainability; Environmental citizenship

Educazione in natura; Outdoor education; Coscienza ecologica; Sostenibilità; Cittadinanza ambientale

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## Introduction

Until relatively recent times, in the Italian context, the opening of formal educational services to outdoor spaces — whether natural environments or community contexts — was, in most cases, considered a marginal option, perceived as difficult to implement or reserved for episodic experiences and specific projects. Such initiatives were often associated with environmental education programs or awareness campaigns on issues of sustainability.

In everyday practice, outdoor education was placed outside the boundaries of the traditional school perimeter, entrusted mainly to informal educational agencies — associations, cooperatives, spontaneous groups — whose actions originated from instances of community participation and from a shared vision of education as a common good, to be passed on to future generations through practices of active citizenship and ecological responsibility.

In the current landscape, a significant paradigm shift can be observed. Nature-based education — articulated through expressions such as outdoor education, outdoor learning, open-air education, natural education, environmental education, and education for sustainability — has progressively assumed a fully legitimized epistemological and pedagogical status. This recognition finds explicit formulation within the *Pedagogical Guidelines for the Integrated “Zero-to-Six” System* (MIUR, 2021), a programmatic document drafted by the National Commission for the Education and Instruction System, in which outdoor education is valued as a foundational dimension of the educational pathway from the very earliest years of life.

This evolution is evidenced by the growing number of scientific publications on the subject<sup>1</sup>, as well as by the renewed interest shown through the organization of conferences, seminars, initial and in-service training programs, and the

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<sup>1</sup> Among the most significant works one may mention: N. Paparella, E. Del Gottardo, *Bambini intraprendenti. La Scuola in campagna*, Franco Angeli, Milan 2023; M. Schenetti, R. D’Ugo, *Didattica, Natura, Apprendimenti. DNA, strumento di valutazione per la qualità dell’educazione all’aperto*, Franco Angeli, Milan 2022; A. Scarinci, *Il bosco nell’aula. Progettare l’educazione ambientale*, Progedit, Bari 2021; A. D’Antone, M. Parricchi (eds.), *Pedagogia della natura. Epistemologia, prassi, ricerca*, Edizioni Zeroseiup, 2018; M. Antonietti, F. Bertolino, *A tutta natura! Nuovi contesti formativi all’aria aperta per l’infanzia di oggi*, Edizioni Junior, Parma 2017; M. Guerra (ed.), *Fuori. Suggestioni nel rapporto tra educazione e natura*, Franco Angeli, Milan 2015; L. Mortari, *Per una pedagogia ecologica*, La Nuova Italia, Milan 2001.

establishment of specific university courses for advanced study and first-level master's degrees<sup>2</sup>. These dynamics reflect a growing demand for professionals capable of working consciously at the intersection of education and environment.

Another indicator of the ongoing transformation is represented by the nationwide spread of educational services centered on nature, including agrinidi (for children aged 3–36 months), agriasili (for children aged 3–6 years), forest schools, seaside preschools, and, not least, the creation of the National Network of Public Outdoor Schools, aimed at promoting a systemic vision of outdoor education and fostering educational alliances among diverse actors and professional profiles.

The integration of outdoor teaching practices now extends from early childhood education services to primary school, and is increasingly involving lower and upper secondary schools in a more structured way. This diffusion was accelerated by the Covid-19 pandemic experience, which highlighted the necessity of rethinking the places and modes of learning in ecological, relational, and spatially flexible terms.

The current environmental crisis — increasingly configured as not only an educational and social issue but also an ethical one — challenges pedagogy in its critical and transformative function, urging it to orient educational projects consistent with a new paradigm of the habitability of the planet. In this perspective, “inhabiting” does not coincide with merely occupying a space, but unfolds as a lived and meaningful experience: it means perceiving the complexity of places, building relationships of care with them, and developing an ecological awareness capable of generating value and meaning.

## **1. Rethinking contact with nature: pedagogical and formative perspectives**

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<sup>2</sup> Specifically, the following advanced training courses are recorded: Interuniversity Advanced Training Course “*Education and Nature. Foundations, perspectives and methodological approaches for an outdoor professional*” (128 hours, 20 CFU), now in its sixth edition; delivered in agreement between the University of Valle d’Aosta, the University of Milan–Bicocca, the University of Bologna, and the University of Parma. In the academic year 2023/2024, this Interuniversity Advanced Training Course was transformed into a first-level interuniversity Master’s program entitled: “*Education and Nature: Competences for Ecological Training and Sustainability*.” In addition, there is the Advanced Training Course in “*Outdoor Education*” – third edition (200 hours, 12 CFU), LUMSA University – Rome, and the Advanced Training Course “*Education in Nature: Understanding and Designing Educational Experiences in Nature (Outdoor Education)*” – Department of Human and Social Sciences, University of Salento.

Until recent times, in the Italian context, the possibility for numerous educational services to go beyond the physical boundaries of internal school spaces and open themselves to the outside — whether represented by natural environments or by community contexts — appeared, in most cases, as an option that was difficult to implement or limited to occasional experiences. Such openings were predominantly tied to specific projects, often connected with environmental education initiatives or with pathways aimed at raising awareness on sustainability issues.

In everyday educational practice, outdoor education was relegated to marginal initiatives, external to the institutional school system, entrusted to third-sector actors — such as associations, cooperatives, informal groups — who acted as promoters of local experiences, born from the bottom up and supported by an actively engaged educating community. At the foundation of such initiatives one finds, in fact, a network of actors sharing a common pedagogical vision, based on the recognition of the cultural value of education as a collective good, to be transmitted to new generations.

Within this framework, the educational practices consolidated in Northern European countries — such as Finland, Sweden, Norway, Denmark, and Germany — were often observed with admiration and amazement. These models were proposed as points of reference<sup>3</sup>, sometimes mythologized, and interpreted as the expression of a “cultural disposition” favorable to outdoor teaching, deemed difficult to reproduce in the Italian context.

In the aforementioned countries, one finds, in fact, a consolidated educational tradition, dating back to earlier times and widely disseminated, in which a significant share of school institutions (between 5% and 10% in the case of Scandinavian schools) (Hansen Sandseter & Hagen, 2016) is based on a pedagogical orientation integrated with the natural environment. This orientation testifies to the existence of a cultural substratum that attributes formative value to constant interaction with nature, where environmental education is perceived not as an option, but as an intrinsic necessity of the educational pathway.

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<sup>3</sup> The results obtained in the 2021 OECD-PISA tests, together with the United Nations Education Index, placed the Northern European countries at the top of the global rankings in the field of education. However, this positive trend is not confirmed in the 2023 OECD-PISA data: while still remaining above the OECD average, the performance of Finnish students shows a marked decline.

This need does not arise solely from school institutions, but has its roots in different social contexts, such as popular movements and networks of organized parents. Emblematic is the case of the historic Swedish movement *Friluftsliv*, still active today in the field of training outdoor educators and in supporting the connection among the many local realities operating in the country.

More than a will to reconstruct a lost relationship with the natural environment, these experiences represent, in most cases, an investment aimed at enhancing and safeguarding a pre-existing relationship, deeply rooted in family and community daily life. The extra-school lifestyle is in fact configured as a direct expression of this bond: the activities proposed by forest schools do not differ substantially from those usually experienced by children together with their parents during leisure time. Domestic gardens frequently include woodland elements, and weekends are commonly devoted to outdoor activities such as walks in the woods, time at the lake, fishing, or the collection of seasonal wild fruits.

It is not, therefore, a matter of constructing from scratch an ecological awareness or a collective identity oriented toward themes of sustainability or toward the reconciliation between human beings and nature. Rather, what is taking place is a process of care and consolidation of an already conscious and deeply lived ecological identity, which is recognized as a cultural heritage to be safeguarded, preserved, and transmitted to future generations.

Taking the figure of the child as a starting point represents one of the most effective strategies for promoting an ecological awareness integrated with the new modes of identification that emerge in the relationship between the history of humanity and a constantly changing world.

This educational approach, based on careful listening and on the recognition of the developmental needs of childhood, fosters the emergence of a form of playful behavioral ecology, capable of stimulating attitudes of care, responsibility, and respect toward the surrounding environment. In this framework, the environment itself is configured as a true social actor, endowed with agency, capable of generating alternative universes of meaning and of promoting significant relational modes.

The formative experiences lived during early childhood constitute a deep emotional heritage that accompanies the individual throughout their life journey, significantly influencing the development of prosocial or dysfunctional behaviors.

It is precisely in the early years of life that the foundations are laid for the construction of conscious adults, capable of inhabiting a society guided by justice, ethics, and humanism. An educational project oriented toward the formation of responsible citizens cannot ignore the creation of relational environments free of coercive asymmetries or oppressive dynamics: such imbalances, in fact, not only negatively affect the affective sphere but may also generate habituation to harmful behaviors, impoverishing the quality of everyday experience and clouding its aesthetic and existential dimension.

The critical issues characterizing the current socio-historical context largely derive from dysfunctional behavioral patterns that cut across the human condition. In particular, the widespread inability to recognize one's own place within the global ecological order leads to a fragmented and irrational management of natural resources.

Adherence to logics of compulsive consumption, environmental neglect, indiscriminate pursuit of profit, and the normalization of violence fuels a cycle of environmental and social crises that call into question the future sustainability of the planet.

Educating children in the ecology of behavior thus means providing them with cognitive, affective, and relational tools adequate for understanding the profound interconnection between their own individual well-being and that of the Earth system. It is essential, in this sense, to guide them in recognizing the environment not only as a resource to be safeguarded, but also as a relational space, full of meaning and opportunities for growth.

Through direct experiences in nature, outdoor play practices, and forms of active participation in community life, children have the possibility to internalize fundamental values such as cooperation, solidarity, and a sense of collective responsibility.

The integration of ecological practices into everyday education fosters the emergence of a culture of mutual respect and shared care, making evident the ethical implications of every action and every choice. This pedagogical approach does not limit itself to the transmission of content, but aims to shape a deep ecological conscience, one that is both individual and social. Such awareness represents the foundation for building a society in which relationships are based on empathy, reciprocity, and authentic understanding.

It is therefore indispensable to create a synergistic alliance among families, educators, and institutions, aimed at promoting a coherent learning environment oriented toward sustainability. Only through structured and conscious collaboration will it be possible to educate new generations not only aware of environmental emergencies but also actively engaged in promoting transformative change, capable of restoring to everyday life the poetic depth and joy of an existence in harmony with the surrounding world.

It is a widely shared opinion that daily closeness to nature constitutes a qualifying element in the quality of human relationships and of overall well-being. Starting from this conception, the underlying philosophy guiding nature-based education is articulated around an essential educational principle: “to know in order to love, to love in order to protect.” The primary goal of the educational process, from this perspective, is to stimulate in children a profound knowledge and an authentic sense of belonging and love for the natural world, so that they may develop the will to take care of it consciously.

In line with this orientation, in Northern European countries outdoor education takes shape as a pedagogical device aimed at strengthening a cultural and natural heritage already rooted in everyday life. From this derive structured educational projects that aim to promote learning about, in, and for nature, offering meaningful formative experiences that foster the development of a stable, positive, and lasting relationship with the natural environment.

On this matter, Bardulla (2017) highlights the need to distinguish among education through the environment, education in the natural environment, and education for the environment. The author underlines how these dimensions are often confused or assumed to be implicitly linked, whereas in reality education carried out in natural environments or having nature as its object of study does not automatically translate into education in favor of the environment. Rather, it represents a necessary but not sufficient prerequisite.

It is evident that lack of familiarity with a given reality prevents one from having direct experience of it, and consequently makes it difficult to develop a sense of belonging strong enough to motivate personal commitment to its protection. It thus appears understandable that, for those who have grown up and lived exclusively in an urban context, the city may be perceived as the “natural” reference environment, compared with the countryside or other spaces where human intervention is less marked or visible.

The added value of nature-based education, as practiced in outdoor educational contexts, compared with other types of formative experiences — particularly in contrast to conventional teaching delivered in traditional school settings — lies in the fact that it is founded on a broadly shared system of values. This cultural foundation makes it possible to extend the scope of educational action, going beyond mere education about the environment or through the environment, to also substantially include education for the environment, understood in the deepest and most transformative sense of the term.

The implicit and explicit norms, the transmitted knowledge, the operative techniques, the symbolic rituals, the educational roles, the materials employed, and the organizational structures that characterize this form of education constitute a shared cultural heritage functional to the construction of a formative experience rooted in a specific environment: nature. The latter is not considered a simple background or secondary setting, but an integral and all-encompassing environment, within which one lives and acts with full awareness. Through the transformation, both material and symbolic, of natural space, all the principal functions of daily life are carried out, avoiding a superficial or instrumental use of its resources.

The pedagogical relevance of the natural environment manifests itself both in the cultural and in the educational dimension, through concrete activities, sensori-motor experiences, processes of symbolization, exercises in observation, and practices of memorization, all of which contribute to the construction of an embodied knowledge, intrinsically connected to bodily and relational action. The unity between gesture and competence, typical of learning situated in natural contexts, stands in contrast to the fragmentation of knowledge often observable in traditional school settings, where activities sometimes appear isolated and disconnected from lived experience.

The educational paradigm founded on learning in nature is instead oriented toward ensuring the transferability of the competences acquired to the different domains of daily life and to future adult experience. For such knowledge, attitudes, and environmental behaviors to become an integral part of the personal heritage of individuals, they must be systematically integrated into a coherent and structured educational pathway, capable of fostering their effective internalization and their lasting permanence over time.

In the contemporary Italian context, a significant change can be observed: nature-based education has assumed a position of growing relevance, fully recognized



not only at the cultural and pedagogical level, but also at the scientific level (MIUR, 2021).

These developments have encouraged a wider implementation of outdoor didactic practices, extending from 0–6 early childhood services to primary school and, progressively, to lower and upper secondary education, domains in which such experiences have proved even more necessary and frequent following the Covid-19 pandemic crisis.

To discuss today nature-based education, or in its broader sense outdoor education, implies reference to pedagogical contexts oriented toward the construction of a situated awareness, founded on the recognition of one's own "being-there" in relation to living beings. It is a matter of fostering the elaboration of a holistic and syncretic thought, which conceives the individual as an integral part of an organic and interconnected whole.

These contexts are not configured as mere places of cultural transmission, but rather as immersive and generative environments, capable of activating processes of authentic discovery and learning.

The educational environment, understood in its dual sense as physical space and social space, takes on the role of active formative context, insofar as each of its elements — objects, words, gestures, human interactions — contributes to a complex system of meanings, practices, and lived experiences. Each component of the environment becomes part of a dynamic organism, capable of profoundly affecting processes of individual formation and development.

From this perspective, objects are not reduced to simple functional instruments, but are configured as mediators of meaning and catalysts of experiences. A book, for example, does not represent merely a textual support, but can become a gateway to imaginative worlds and to new visions of reality; a well-structured learning environment stimulates curiosity, exploration, and active participation. Likewise, gestures — even the most discreet and seemingly insignificant — can exert a significant educational impact: a smile, an adult's encouragement, contribute to generating an emotional climate favorable to learning.

Words, finally, assume a decisive function: every communicative act, verbal and non-verbal, contributes to the construction of a relational fabric based on trust, empathy, and collaboration. The quality of interpersonal interactions directly affects students' motivation and attitude toward knowledge; positive and solid

educational relationships reinforce the inclination to commitment, participation, and meaningful internalization of content.

From this point of view, the educational environment is configured as a complex and dynamic formative ecosystem, in which each element interweaves and interacts with the others, contributing to the creation of a generative atmosphere, capable of stimulating imagination, openness of mind, and desire to learn.

The intentional and careful design of such environments, calibrated to the needs, potential, and specific requirements of students, proves fundamental for promoting transformative learning experiences, endowed with meaning and lasting over time.

The educational environment cannot be reduced to a simple container of didactic activities: it represents an interactive and generative fabric, a complex system in which objects, languages, behaviors, and human relationships intertwine synergistically, creating favorable conditions for the global growth of the individual. The construction of spaces capable of recognizing and enhancing such complexity represents one of the most relevant challenges for contemporary educational institutions, since it is precisely in such environments that the foundations for deep, authentic, and lasting learning are laid.

## **2. Experiential Learning (Outdoor Education, Workshops, Guided Visits)**

Within the landscape of innovative teaching methodologies, outdoor education takes shape as a pedagogical practice capable of activating deep, authentic, and transformative learning pathways, able to respond effectively to the educational challenges posed by contemporary society. This approach, which transcends the boundaries of the traditional classroom to open itself to natural, urban, and community spaces, cannot be interpreted as a simple logistical variation of ordinary school activities, but rather as a true redefinition of educational paradigms. In outdoor education, the environment becomes an integral part of the teaching–learning process: from a mere background it becomes a co-protagonist of the didactic experience. It is through direct contact with living, changing, and multisensory reality that students develop ecologically aware knowledge, skills, and dispositions, in a process that engages body, mind, and emotions.

This educational model is based on the idea that meaningful learning occurs through doing, situated action, and interaction with context. Leaving classrooms and immersing oneself in natural or semi-natural environments allows students to activate more integrated and participatory cognitive modes, capable of generating deep and lasting understanding. As Serina emphasizes, the natural context stimulates in children a plurality of sensory and relational channels that hardly find space in traditional school environments (Serina, 2021). Walking, touching, moving through space, observing natural phenomena in proximity means building an embodied and experiential knowledge, closely connected to life. It is not a matter of transferring theoretical content into a more evocative setting, but of activating learning processes based on direct experience, active observation, autonomous exploration, and peer collaboration.

One of the most innovative aspects of outdoor education is the possibility of deconstructing the traditional relationship between teacher and learner, fostering a more egalitarian, dynamic educational relationship, founded on co-exploration. In this scenario, the teacher assumes the role of facilitator, travel companion, and director of meaningful contexts, rather than that of a mere transmitter of knowledge. As Romeo highlights, the educator who works outdoors is called upon to develop a new professional posture, capable of interpreting emerging needs, accompanying without imposing, and valuing the unexpected as a formative opportunity. The natural environment, with its unpredictability and resistance to rigid patterns, also challenges the adult to put themselves back into play, to observe with renewed eyes, and to allow themselves to be surprised. In this process, knowledge is built collectively, in the relationship between adults, children, and the natural world.

This teaching practice proves particularly incisive for the promotion of environmental awareness, as it allows students to establish a direct and emotional bond with nature. Contact with trees, plants, animals, water, light, and sounds fosters the development of both an affective and cognitive relationship with the environment, which translates into a sense of belonging, responsibility, and care. Outdoor experience, in fact, enables children to recognize themselves as part of an ecosystem, stimulating a deep and unmediated ecological sensitivity (Borelli & Gigli, 2020). The natural environment thus becomes a place of non-formal learning, generating curiosity, wonder, respect, and questioning. It is precisely through this living and embodied relationship that the foundations are laid for sustainable behaviors, grounded in experiential rather than prescriptive knowledge.

Outdoor education also promotes autonomy, cooperation, and the ability to deal with the unexpected. In natural spaces, students are called upon to make decisions, solve problems, and collaborate in non-predefined situations, developing transversal competences fundamental to the exercise of active citizenship. Outdoor activities enhance resilience, adaptability, bodily awareness, and a sense of responsibility toward oneself, others, and the environment (Simonetti, D'Aprile & Bufalino, 2020). Through free play, experimentation, and risk management in protected conditions, children learn to understand their own limits, to trust in their abilities, and to care for spaces and relationships. In this way, environmental education becomes an existential and formative experience, capable of transforming children's perception of the world and their role within it.

It is important to emphasize that outdoor education is not limited to uncontaminated natural contexts: even urban parks, school gardens, neighborhood green areas, and interstitial spaces within the city can become learning environments, provided they are inhabited with awareness and educational intentionality. The rediscovery of territory as a formative context constitutes a political and cultural act, which restores centrality to direct experience, to slowness, to the observation of reality (Persico, Guerra & Galimberti, 2019). In an era characterized by virtualization and fragmentation, outdoor education offers the opportunity to reclaim time and space, to build authentic relationships, and to strengthen the sense of community through shared experiences.

The transformative character of this practice also lies in its ability to call into question the implicit assumptions of traditional schooling: the centrality of written word, the primacy of cognitive performance, the separation between mind and body, between reason and emotion. In nature, knowledge is built through movement, senses, body. The child learns with the totality of their being. The active integration of the body into educational processes promotes the acquisition of knowledge that is more stable and transferable, as it is rooted in concrete experience (De Carlo & Toti, 2020). Outdoor education thus configures itself as a comprehensive pedagogical vision, which values the wholeness of the person and promotes ecological education understood as awareness of the interdependence between individual, environment, and society.

It should not be overlooked that the effectiveness of this educational approach depends to a large extent on the preparation and motivation of teachers. For outdoor education to truly activate transformative pathways, it is indispensable that teachers develop specific competences and a professional disposition that is

open, reflective, and flexible. The outdoor educator must know how to read the environment as an educational text, grasp the opportunities of the context, and accompany students along pathways that are never linear nor predetermined (Chiappetta Cajola & Guerra, 2020). This entails a critical revision of traditional didactic models and of professional beliefs themselves.

Another important aspect concerns the strong inclusive value of outdoor education. Nature, by its very essence, offers itself as a welcoming and stimulating environment, capable of involving children with different abilities and special educational needs, fostering their participation, autonomy, and personal expression. Outdoor learning reduces material and symbolic barriers, enhances diversity, encourages cooperation and mutual respect (Scarinci, 2021). From this perspective, environmental education also becomes education in citizenship, coexistence, and solidarity, enabling each child to perceive themselves as part of a whole and to experience the beauty of difference.

Outdoor education thus presents itself as one of the most promising avenues for promoting a school capable of educating for sustainability in an authentic, transformative, and profound way. It allows the overcoming of the fracture between theory and practice, between mind and body, between individual and environment (Serina, 2021). Direct contact with nature enables students to develop not only ecological knowledge, but also social, emotional, and cognitive skills that make them conscious and responsible citizens (Scarinci, 2021). Its transformative power lies in its ability to restore centrality to experience, relationship, listening, and wonder (Chiappetta Cajola & Guerra, 2020). To educate outdoors means, ultimately, to educate for life in its complexity, its fragility, and its beauty.

In this journey, workshops and guided visits are configured as privileged tools, capable of integrating the cognitive dimension of learning with its experiential and relational aspects. They allow students to learn through body, senses, and emotions, transforming the act of doing and seeing into foundational experiences of knowledge (Romeo, 2018). Environmental education thus becomes rooted in lived and meaningful experiences, capable of generating deep and transformative understandings.

Workshops, when designed with pedagogical awareness, become dynamic spaces in which practical intelligence, critical thinking, and collaboration are enhanced. The manipulation of natural materials, the construction of ecological models, and scientific experimentation allow the overcoming of the dichotomy between

theory and practice and the consolidation of embodied knowledge (Romeo, 2018). At the same time, guided visits offer valuable opportunities to anchor knowledge in reality, enabling direct observation of phenomena and contexts.

In conclusion, workshops and guided visits, when integrated into a conscious educational project, not only enrich teaching pathways, but contribute to shaping ecologically aware citizens, capable of confronting the complexity of contemporary society with responsibility and critical spirit. In an era marked by environmental crisis, outdoor education proves to be an indispensable tool for building an open, participatory school oriented toward planetary citizenship founded on care, respect, and sustainability.

### **3. Environmental education as a transversal axis of the school curriculum**

Within the framework of contemporary schooling, the challenge of environmental education cannot be relegated to episodic initiatives or to isolated thematic days: only through a transversal and interdisciplinary approach can it be placed at the core of the educational curriculum, profoundly influencing the learning experience (Serina, 2021). To understand the environment as a central axis of education means recognizing how sustainability permeates every disciplinary field: it is inscribed in the languages of mathematics, questions history, dialogues with geography, reshapes artistic expressions, and stimulates philosophical reflection, as well as ethical and behavioral reflection.

Italian pedagogical research highlights that transversality fully emerges when teachers, usually rigorous within the boundaries of their disciplines, establish reciprocal dialogue, sharing aims, languages, timing, and tools. The result is an organic curriculum, in which environmental themes do not constitute an external addition, but a true guiding thread. In this way, the child grasps the coherence of knowledge and experiences continuity between what is learned in class and everyday life.

Interdisciplinarity, however, is not reduced to the simple juxtaposition of content, but implies recognition of the environment as a complex system: an interweaving of elements, processes, and interactions that require multiple and complementary analytical tools (Loiodice, 2018). Truly effective curricula are those that give life to interdisciplinary projects as “places of interaction between different languages, in which complexity itself becomes the object of learning” (Loiodice, 2018).

Students, when addressing authentic environmental problems — from the consumption of natural resources to pollution, from the loss of biodiversity to waste management — develop critical thinking, methodological competences, and context-reading skills (Scarinci, 2021). Knowledge thus arises from the interweaving of knowledges, not from their isolated sum.

The ministerial guidelines reaffirm that integration must be systematic and supported by meaningful evaluation processes (MIUR, 2019): competences cannot be built unless anchored to measurable objectives and reflective pathways.

This transversal dimension also affects the management of school time and space. Transversality constitutes a pragmatically effective didactic choice. It reduces the repetitiveness of modules, stimulates curiosity, and fosters discovery, allowing for a creative use of school spaces: classrooms, laboratories, libraries, and courtyards (Scarinci, 2021). The integration of environmental workshops into curricular pathways normalizes ecological practices, embedding them in everyday school life rather than treating them as extraordinary events. In this way, sustainability is affirmed not as an episodic theme, but as a shared and co-designed experience (Serina, 2021).

Ultimately, to consider sustainability as a formative axis of the curriculum means acting with responsibility and critical reflection (Trentin, 2020), rethinking the school as a place not of mere transmission of knowledge, but as a dynamic, creative, and systemic educational environment (Morin, 2015). Transversality becomes the concretization of a humanistic pedagogical vision, capable of promoting cooperation, care, awareness, and competence (Pellerey, 2018). Within this framework, children learn to be respectful and aware citizens, driven by an authentic desire for knowledge and ready to project themselves into the future (Bertagna, 2019).

To construct an authentic and lasting ecological education, capable of truly influencing students' behaviors and knowledge, it is necessary to translate theoretical foundations into coherent and everyday didactic practices (Sterling, 2001). The main challenge for teachers and educational institutions lies in building bridges between concepts and actions, knowledge and meaning, motivation and concrete involvement (Serina, 2021). The integration of environmental education into school pathways requires coherent planning, concrete experiences, formative evaluations, and shared moments of reflection, so that sustainability may be lived as a transversal guiding thread, and not as an accessory discipline (Tilbury, 2011).

Didactic planning represents the indispensable starting point. Research shows that it is fundamental to define clear learning objectives, closely connected to environmental competences and calibrated to local needs and resources (Antonietti, Bertolino, Guerra, & Schenetti, 2018). It is not a matter of preparing standardized modules, but of starting from the real context of the school, transforming environmental education into a situated practice. In this direction, pathways can be initiated based on concrete observations, such as the monitoring of energy consumption or recycling projects, accompanied by deep reflection on aims and expected results (Serina, 2021).

Another strategic axis concerns experiential teaching, which includes outdoor activities, workshops, guided visits, and methodologies such as Project Based Learning. These approaches allow students to directly experience natural dynamics and concretely address environmental issues. It has been observed that practical experience consolidates knowledge: a composting project monitored over time produces a deeper understanding of biodegradation processes compared to a purely theoretical lesson (Scarinci, 2022). In this way, theory is translated into embodied experience, reinforcing motivation and internalization of content (Serina, 2021).

Equally relevant is the adoption of cooperative methods that foster the internalization of ecological values. When students collaborate in the construction of procedures aimed at reducing waste or improving the school environment, they develop a sense of belonging, responsibility, and reciprocity (Barbiero, 2017). The organization of recycling systems managed by the students themselves constitutes a concrete example, showing how theory can be translated into practice and how the school can be configured as an active laboratory of sustainability (Barbiero, 2017).

Ongoing teacher training represents, finally, an indispensable condition. As shown by Scarinci and Ferrari, the creation of learning communities, peer training, and the exchange of best practices guarantee the sustainability of initiatives over time (Scarinci, 2021). To educate for ecology means, in fact, to embrace a permanent pathway of experimentation, reflection, and updating, in which theory is translated into concrete praxis.

The inclusion of environmental education in the curriculum must also be accompanied by the construction of a shared school ethos, characterized by common rules, transparent communication, dedicated events, and collaboration with families and the local community (Serina, 2021). The school thus takes shape



as a living space of environmental reflection and action, where theory is translated into daily practices and meaningful relationships.

In summary, transforming theory into practice means initiating a virtuous circle: designing in coherence with context, experimenting through experiential and collaborative methodologies, evaluating with authentic tools, reflecting and narrating the pathways, and collectively updating. Only in this way is it possible to realize a solid and lasting ecological education, capable of forming conscious citizens and protagonists of change (Trentin, 2020).

## **Conclusions**

Pedagogical knowledge has the task of investigating the complexities and critical issues generated by the acceleration of everyday time, a phenomenon that profoundly affects the lives of children and adolescents. The widespread perception of urgency and speed can, in fact, generate tensions, anxieties, and discomforts that compromise the harmonious development of growing individuals and hinder the possibility of authentic and meaningful learning.

In this perspective, it appears indispensable that pedagogy should not be limited to the reproduction of standardized or superficial educational practices, but that it should commit itself to the construction of innovative formative pathways, capable of intercepting the complexity of experience and restoring meaning to the educational process. Such pathways must be designed by valorizing the individual and social experiences of young people, integrating them into the spatial-temporal contexts in which they live and operate. The objective consists in outlining existential scenarios capable of reconciling human becoming with the challenges and dynamics of contemporaneity. This means promoting an education that does not limit itself to the transfer of knowledge, but that supports the development of relational, emotional, and critical competences, indispensable for facing a complex and constantly changing reality.

To realize such a perspective, a pedagogical approach is required that can valorize the diversity of experiences and encourage the active participation of students in the decision-making processes related to their educational pathway. Learning experiences should be meaningful and contextualized, so as to allow each individual to feel part of a process that recognizes and respects his or her uniqueness. Education, from this viewpoint, must set as its primary aim the development of authentic well-being, not only intellectual but also emotional and

social. This implies the creation of welcoming and inclusive educational environments, in which students can freely express emotions, aspirations, and desires. In a world dominated by the rapidity of rhythms, it becomes essential to teach the importance of reflection, of self-awareness, and of experiential learning, providing students with adequate tools to take the necessary time to explore, understand, and grow.

Pedagogy, moreover, is called to play an active role in the promotion of sustainable and responsible lifestyles, oriented not only toward individual well-being, but also toward collective and environmental well-being. An education capable of stimulating ecological and social awareness contributes, in fact, to making students understand the interconnections between daily actions and the wider world, encouraging the adoption of responsible and proactive behaviors.

In summary, pedagogical knowledge is obliged to confront the challenges of contemporary time acceleration by adopting a broad and integrated vision. It is necessary to promote an educational model which, beyond transmitting knowledge, prepares young people to live consciously, harmoniously, and responsibly in the current context, fostering not only their personal well-being, but also the construction of a more just and sustainable society. In this perspective, Malavasi underlines the need for a new theoretical elaboration capable of recognizing the positive link between human beings and nature, without sacrificing either individual originality or environmental objectivity, while simultaneously promoting the integrity of the person and of the surrounding world (Malavasi, 2005).

Pedagogical discourse also highlights that a change in the perspective of education can foster the transformation of intentions into concrete projects, supported by a new vision of the world and by innovative models of inhabiting the planet. To inhabit does not simply mean to occupy a space, but to live it in its entirety, to perceive it in its multiple nuances, to recognize oneself in it, and to wish to valorize it. To inhabit thus becomes to co-construct new meanings of living, loving, working, socializing, and producing.

The human being ontologically possesses the capacity to structure, with the environment and with history, a relationship that generates meaning, grounding the construction of his or her own identity. New formative needs therefore emerge, which take shape as true educational emergencies, traceable to the individual's need to re-appropriate the self, redefining the relationship with the world and recovering deep motivations of belonging to nature, today threatened

by processes of modernization that risk disorienting people through increasingly pressing normative stimuli.

In this perspective, the valorization of childhood represents a categorical imperative, since it constitutes the time in which those radical changes are generated that are destined to influence future life. The educator, attuned to the child, promotes the pleasure of being together and, through play, alphabetizes body and mind in a didactic synthesis that is at once meaning, content, and method. Thanks to an empathetic, affective, cognitive, and creative attitude, the educator accompanies the child toward an original discovery of reality, making him or her capable of “learning to know, learning to do, learning to live together, learning to be” (Delors, 1996). This process nourishes self-awareness, awareness of one’s role and responsibility in a time dominated by the knowledge society and global digital networks.

Pedagogical discourse emphasizes that learning to observe the world with a wide gaze and intertwining different forms of knowledge enables the adult, educated from childhood to initiative and creativity, to connect information, values, and people, elaborating strategies and solutions to the challenges of modernity. Concepts such as culture and nature, relation and encounter, listening and wonder, initiative and exploration revolve around a fundamental educational principle: that of daring, of crossing thresholds in order to overcome uncertainties and difficulties.

The educational alliance between school and family takes shape as an indispensable knot, since it implies the sharing of responsibilities and the construction of formative continuity. Both institutions are called to question themselves even before providing answers, becoming reciprocal resources. The sense of belonging manifests itself through the sharing of playful and domestic experiences, from which the child’s deepest needs emerge.

Within this framework, the theme of the development of an ecology of thought is linked to the quality of education and to the formation of a universal eco-thinking, oriented toward satisfying the needs of the present without compromising those of future generations. Encounters, shared experiences, friendly inclusions, and playful-exploratory practices predispose children to listening and to the capacity to recognize themselves as social subjects, capable of dialogue, cooperation, and of constituting spontaneous groups of activity.

The realization of self-awareness, of one’s role, and of one’s responsibility gives education the value of an instrument of peace and coexistence, founded on the

value-quality of relationships and on the human–environment relationship. The issues addressed show how human civilization can be understood only through a holistic vision. It therefore becomes urgent to guide childhood toward an adulthood that is sensitive, competent, and empathetic, capable of recognizing and loving nature, understood as a source of life and beauty, and of building conscious communities that know how to recognize that “a single soul connects all aspects of creation” (Pati, 1996).

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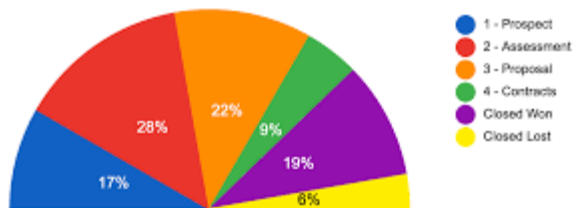


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Figure 1. (description)

## **Conclusions**

## **Author contributions**

Specify the individual contributions of each author in this section.

## **References**

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