THIS IS NATURE, NOT AN AMUSEMENT PARK: ATTRITION OF NATURE KNOWLEDGE AND NATURE VOCABULARY AMONG CHILDREN DUE TO URBANIZATION AND DECLINE OF BIODIVERSITY. PEDAGOGICAL PERSPECTIVES

QUESTA È LA NATURA, NON UN PARCO GIOCHI: PERDITA DI CONOSCENZE E VOCABOLARIO NATURALISTICO TRA I BAMBINI A CAUSA DELL'URBANIZZAZIONE E DEL DECLINO DELLA BIODIVERSITÀ. PROSPETTIVE PEDAGOGICHE

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ABSTRACT

Recent studies indicate a connection between species disappearance, urbanization, and a reduction in nature knowledge and vocabulary. While this area of research is still developing, evidence suggests a decline in the transmission of nature-related knowledge across generations, which may also lead to a decrease in relevant nature vocabulary among younger people. In response to these challenges, educational approaches may increasingly focus on investigating nature's intangible heritage and language.

Studi recenti dimostrano la connessione tra sparizione di alcune specie, urbanizzazione e un decremento della conoscenza e del vocabolario naturalistici. Quest'ambito di ricerca è ancora largamente inesplorato ma ci sono prove che suggeriscono un declino nella trasmissione transgenerazionale della conoscenza della natura e una diminuzione lessicale nel vocabolario delle nuove generazioni. La pedagogia può rispondere a queste sfide indagando sull'eredità intangibile e sul linguaggio della natura.

KEYWORDS
Nature knowledge; nature vocabulary; ecoliteracy; natural divide; outdoor training
Conoscenza della natura; vocabolario naturalistico; alfabetizzazione ecologica, natural divide; educazione in natura

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Introduction

Cities are the predominant environment for humans, with statistics indicating that now almost 4 billion people live in urban areas and an estimated 66% of the global population is projected to be urban by 2050. This phenomenon is re-shaping human relationships and connections with the natural world with profound repercussions on the quality and quantity of human – nature experience and nature-related knowledge, while also endangering many species.

Although new generations are often regarded as being highly engaged in ecological issues and aware of challenges such as pollution and vanishing of biodiversity, relevant studies pointed out that they are less connected to natural environments and that transgenerational nature knowledge and terminology are in jeopardy. The loss of nature-related experience and learning are more severe amongst the youngest. Engaging in meaningful activities and interactions in nature, especially early in life, fosters greater ecoliteracy—an understanding of natural systems and ecological principles that support sustainable communities (Capra 2007).

Children's access to nature is influenced by socio-cultural factors and proximity to green spaces; reduced outdoor activities and less exposure to natural environments may result in nature-related vocabulary being substituted with indoor and technology-related terms, as happened in 2007 in the *Oxford Junior Dictionary.* [1]

This episode identifies areas for further study, including language–nature interactions, knowledge transmission, nature skills, and cultural heritage preservation. Future research could examine whether nature-related words are disappearing due to reduced use in books and education, limited nature experiences, or media influence, as well as the impact of outdoor education on maintaining nature practices and local language.

This study examines the epistemological dimensions of nature preservation, outdoor education and nature knowledge. This descriptive analysis attempts to outline the intertwined phenomena of the loss of natural areas and the vanishing of children's experience in nature, with a focus on the parallel reduction of nature related knowledge and vocabulary in younger generations. The inquiry initially

[1] https://grist.org/language/nature-word-language-disappear-culture/

highlights ways to improve equitable practices in nature accessibility and suggests preliminary research on the decline of natural words and knowledge among Italian kids, using studies of removable or lost English words from the Oxford Young Dictionary 2007 as a reference.

The central research question is whether a notable decline in nature-related knowledge and vocabulary among younger generations, associated with urbanisation and the loss of natural environments, threatens the transmission of natural culture and ecoliteracy across generations.

This relatively unexplored area of research holds significant potential as an asset in pedagogical studies related to outdoor training.

1. Theoretical Framework. Children's misleading expectations in natural environments.

How do children *meet* nature? How has their knowledge of natural environments changed over time?

The extension of market logic to nature and disruptive urbanization have changed the quality of significant nature situations, which appear to be restraint to a sporadic and superficial nature routine. Children that are more exposed to indoor routines are less likely to be competent when interacting in and with natural contexts. Moreover, the design of artificial green areas and the homologation of children's playgrounds have limited the variety of natural features and the risks that pertain to the outdoor environments, leaving them unable to read non-artificially manipulated natural elements.

A non-superficial role also play the media and the entertainment industry, which orient children's imagination towards a pre-ordinated set of expectations and experiences.

By exploiting children's imagination, recreational spaces are designed to mimic nature but often lack its complexity and authenticity. These artificial environments lead to a standardization, or homologation, of children's interactions with nature, eroding immaterial knowledge and local wisdom. It is the *dark side* of imagination: children who live predominantly in urban areas and are more used to indoor activities, to segregated, pre-determined and planned environments, do not understand anymore the difference between nature and recreational spaces. They expect what they are usually encountering when going out with their parents in malls or parks: rides, puppets, toys, and therefore struggle to read properly the context they are in. Their disorientation is such that they seem to have come from a different planet (Bertolino, Piccinelli, Perazzone 2012).

Since childhood has become a market-section, market-driven changes cause shallower experience of nature: nature commodification affects the quality of human -nature relationships. If nature is "an experience to be sold", natural environments are not preserved but manipulated in order to meet the "customer's expectations": nature becomes artificial, "unnatural".

Children's taxonomic imaginations are pushed towards exotic or artificial environments instead of focusing on the local fauna and flora they might interact with in their surroundings. They may be disconnected from their natural environment. There is growing focus on designing green infrastructures in urban areas to promote human-nature connection (HNC). However, there are currently no assessments or guidelines for how to design these areas while maintaining the quality of this connection, which appears to be determined in children's early years (Giusti, Svane, Raymond and Beery 2018:1). There are two common elements identified in HNC studies: it encompasses a range of values and beliefs that are associated with future behaviors and choices favoring nature, and the stability of HNC is supported by consistent direct interaction with nature during childhood. First experiences in nature are essential in outlining HNC psychological treats, that are transgenerational and will determine future social dynamics in nature:

«…direct experiences of nature during childhood are fundamental moments of sustainable enculturation, with long-lasting consequences for sustainable social-ecological systems. Considering how the physical living environment of humankind, i.e., the human habitat, provides nature experiences for children is therefore a crucial step toward reaching sustainable developmental goals.» (Giusti, Svane, Raymond and Beery 2018: 2)

The *urbanization process largely ignores the design of nature experiences,* and we face the *extinction of experience*, their absence in the human habitat. (Giusti, Svane, Raymond and Beery 2018:2). While the question remains whether it is preferable to adjust to this process that devours nature - recreating it only in predetermined, artificial areas - or strive to return to a more *natural* way of life and let nature be again our habitat, it is evident that new strategies are needed.

At minimum, new tools should be developed to identify which green infrastructures are more suitable for high quality HNC. Top-down segmentation and the thematization of the urban spaces disconnect green areas from their "functions" in the ecology of human-nature relationships, fostering in new generations a *compartmentalized approach* to both urban a green dimension.

Studies on the effects of dense urban environments on humans and children in particular are objects of several ongoing researches, focusing especially on health and wellbeing (Tillmann, Clark & Gilliland 2018; Mansour *et* alii 2003). A major effort should be made to examine the intergenerational transmission of nature knowledge and nature immaterial heritage. We've forgotten that nature's main role is to nourish our bodies and shape our minds, not to offer recreational opportunities. Despite policy makers promoting green initiatives and greater environmental awareness among youth, the loss of natural environments is reducing the knowledge we can pass on to future generations. This area remains relatively unexplored. A prevalent perspective suggests that the younger population demonstrates more extensive social involvement in ecological activities and environmental activism compared to previous generations (Raman, Das, Mandal, Vijayan, Amritesh, Nedungadi 2024); however, recent data collected by IPSOS offer a somewhat different view.[2] A notable paradox emerges: although there is an expressed concern for ecological impact, this is often offset by less mindful behaviors. Similarly, while ethical brand practices are valued, this is contradicted by the widespread adoption of fast fashion. Furthermore, despite an increased interest in outdoor pursuits, engagement with nature tends to lack spontaneity and depth of knowledge, typically focusing on athletic or recreational activities such as hiking, outdoor fitness and yoga, trekking, digital detox retreats[3].

Does the observed young people's inclination to spend time outdoors genuinely contribute to their understanding of nature? To what extent has the childhood HNC gap affected the current generation? Is nature perceived by them merely as vacant space compared to the bustling urban environment? More effective approaches are required to address diminishing environmental awareness, and the growing disconnect between humans and their surroundings: nature is not a predetermined setting, it is an *anthropological place*.

2. Nature as anthropological place: identitarian and cultural potential of outdoor education.

Natural environments are not merely a green or blue background, they must be considered anthropological places, grounded in history, identity, and relationships. Unlike "non-places" (Augé 2009), they are crucial for the transmission of culture and the construction of individual and collective identity. Recognizing nature as an

[2] https://www.ipsos.com/it-it/caratteristiche-generazione-z-mito-realta
[3] https://www.cabidigitallibrary.org/do/10.5555/blog-genz-outdoors-nature/full/

essential component of cultural heritage reinforces its importance in shaping the values and behaviors of future generations.

Geographical space acts not only as a backdrop but as a dynamic social and cognitive agent (Vallega 2004). It shapes possible worlds, influencing the modes of interaction and the ways individuals function within their environments. By participating in the creation of context, geographical space determines the possibilities for learning, engagement, and growth, both collectively and individually.

Children and young people who have qualitatively, and quantitatively significant nature connections have also acquired throughout their experiences an intangible cultural heritage, a local wisdom they will be able to develop and implement when adults.

They also share with their peers worldwide a common behavioral background and understanding of natural systems, unlike the children and youngsters who are primarily educated indoors and spend more time on social media and on the net, who have a different behavioral set: we might refer to *universal children* versus *globalized children* (Del Gottardo, Nicolai 2018: 38-39; 2021: 17-19).

The universal child is a rural archetype, from before industrialization and globalization: competent, transcends geographical boundaries and the passage of centuries, shows great disposition to cooperate with others, to soundly manage spontaneous situational stimuli, to deal with them with physical skills and judgment.

The universal child of the pre-consumerist, agricultural world, learns in an unstructured, immersive, situated, dialogical, and experiential way (Del Gottardo, Nicolai, 2021:18):

- immersive: within their community;
- situated: in relation to a specific socio-cultural practice;
- dialogical: in constant reciprocity with the others;
- experiential: through self- and hetero-led experiences.

Universal children grow up in communities where nature is a partner in learning, fostering independence and resourcefulness. In contrast, the globalized child is disconnected from their environments, lacking experience and autonomy. Globalized children do not possess a hand-on nature knowledge that may reflect more often mainstream global contents than the fauna and flora in their surroundings they usually interact with. They mostly live in urban habitats and,

even if they get connected to natural environments, they are less likely to develop nature knowledge.

The quality of nature routine is determined by cultural and economic backgrounds rather than by the geographical location; the deprivation of nature experience causes alienation and psychological disturbances, that have been described as *nature deficit disorder* (Louv 2005).

On the contrary, resourceful engagement in varied outdoor activities supports physical, cognitive, and emotional growth; interacting with nature helps children take risks, learn, and explore—characteristics of the universal child. This reflects the concept of "adaptive continuity" (Paparella, Del Gottardo 2023).

Nature reminds us that we do not belong to *deterritorialized* communities (Appadurai 1996), but we are rooted in our habitat. We must preserve natural environments and prevent their destruction, countering the economy of neglect (Stiegler 2023), learning how to care again for natural resources and knowledge.

The *libido aedificatoria* (Michéa 2014) that corrodes nature and impose urbanization of human habitat could not be mitigated by the design of urban green areas: outdoors shall not serve a word *simulacrum* (Rist 2013), passepartout, to justify the present system and investments and prevent any change in it (Del Gottardo, Nicolai 2024; 2025). Nor should young generations be deprived of a meaningful relationship with nature.

When children lose their chance of an early nature routine and in-depth experience, spending more time indoors and engaged in an online dimension, they show less ecoliteracy and resourcefulness.

3. Children – nature connection faced to urbanization: a vanishing relationship?

Resourcefulness is a skill that can be developed only through collaboration, has a strong social dimension (Paparella, Del Gottardo 2023). In outdoor learning settings, children learn that taking initiative does not mean “to do it alone”, that we need the others to face incertitude. This collaborative dimension can restore care and curiosity towards the natural environment, seen as a place of learning and experiencing. This is why children- nature connection (CNC) is fundamental not only for children’s learning and psycho-physical development, but also for preserving natural environments and their immaterial knowledge.

The cultural transmission, both intergenerational and transgenerational, cannot prescind from the roots each community plunges in its territory, thus nature should

be again the habitat humans are familiar with, not be confined in uncertainly designed urban green areas.

We are used to hearing the word *sustainability* very often but, if it does not imply contrasting the economic myth of the infinitive growth in a finite territory, might be again a world *simulacrum* whose meaning is as unclear as its popularity:

«We need an operational definition of ecological sustainability. A key to such a definition is the realization that we do not need to invent sustainable human communities from scratch. First, we can learn from comparing the practices of societies that have sustained themselves for centuries on a limited resource base with those that have not managed to do so». (Capra 2007:10)

Collaborative skills seem to be essential to developing ecoliteracy and to preserve ecosystems:

«To be sustainable, a human community must be designed so that its ways of life, technologies, and social institutions honour, support, and cooperate with nature's ability to sustain life. This definition of sustainability implies that in order to build sustainable communities, we must understand the principles of organization that have evolved in ecosystems over billions of years. This understanding is what we call "ecological literacy." In the coming decades, the survival of humanity will depend on our ability to understand the basic principles of ecology and to live accordingly.» (Capra 2007:10)

When nature knowledge is neglected, children forget their immanent ability to deal with natural elements, and their affordance (Gibson 1979) and problem-solving skills are endangered.

The dichotomy between indoor and outdoor, urbanized and rural areas, natural and artificially green areas, poses many pedagogical questions, specifically when trying to counter nature experience deprivation or absence. While a growing ecological awareness shall hopefully orient policy makers to a significative pro-nature perspective, specific challenges are emerging for pedagogists and educators. Rediscovering nature as an anthropological space implies understanding the educational potential of nature systems and practices; this suggests including nature nomological dimensions in designing curricula.

Many attempts to foster outdoor educational patterns have been undertaken in the last decades, focusing on children. The scientific literature on this subject addresses a wide range of educational contexts, objectives, and outcomes related

to education in natural settings. Italian academic work has provided substantial analysis and insight in this area (Schenetti, D'Ugo 2022; Scarinci 2021; D'Antone, Parricchi 2018; Antonietti, Bertolino 2017; Guerra 2015; Mortari 2001).

While benefits of outdoor learning have been vastly and clearly agreed on by the scientific community, there is space for improving the pedagogical proposals and perspectives on how to ensure equitable access to education in nature in urban areas and on how to prevent and respond to nature deprivation and its consequent knowledge loss.

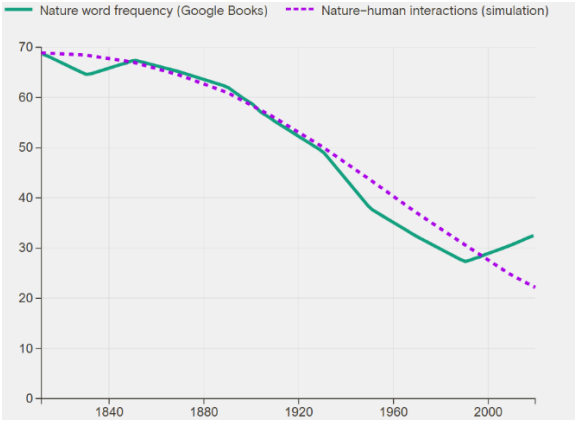
A largely unexplored research field is that of the loss of nature vocabulary in children and young people, which appears to be subsequent the loss of experience or the vanishing of nature -words in books and textbooks. It could be researched if this decline of nature terms might denounce the impoverishment of nature knowledge. Vanishing of nature causes the fading away of words and competences?

4. Attrition of nature vocabulary in children and young people. Preliminary studies and results.

The relationship between nature language and knowledge and the vanishing of natural environment is a research open field, which has recently gained high attention. The assumption is that there might be a nature language decline parallel to the reduction of green spaces and of HNC. The decrement of the time spent in natural contexts is specular to a reduced affinity for it, in an unvirtuous chain:

«The reduction in exposure to nature (opportunity) and the decreasing affinity for it (orientation), which together create a cycle that weakens the human-nature relationship, is referred to as 'extinction of experience'.» (Richardson 2025:1)

Children and young people use fewer nature-related terms, a pattern also observed over time in textbooks, literature, and the figurative language used in daily interactions. Young adults who have reduced their engagement with nature may also experience decreased familiarity with nature-related knowledge and relapse into nature illiteracy.



Graphic 1 Nature word frequency and nature-human interaction
Source: https://grist.org/language/nature-word-language-disappear-culture/

Balmford (2002) noted that there is evidence of a loss of 'nature-literacy' due to urbanization and a more online life dimension. His founding reveals that children would easily recognize a Pokémon but struggle with animals and plants, and this represents a subject of great concern:

«During their primary school years, children apparently learn far more about Pokémon than about their native wildlife and enter secondary school being able to name less than 50% of common wildlife types. Evidence from elsewhere links loss of knowledge about the natural world to growing isolation from it.» (Balmford 2002)

Intergenerational lexical leak within nature vocabulary reflects the loss of nature knowledge and nature connection and plays a crucial factor in defining the quality of human engagement in natural environments. Like digital tools (Gjergji 2021), access to nature's knowledge is not *socially neuter* and is shaped by economic and geographic disparities, creating an intergenerational *natural divide*. Moreover, intergenerational loss of nature-related vocabulary signals a decline in nature awareness and connection, influencing how people engage with natural environments.

Researchers have not yet appointed an integrated and multifaceted assessment, quantitative and qualitative, with related tools to set a framework and collect indicators on the interdependence of nature experience and nature language:

«Though studies across disciplines point to a growing disconnect between humans and their environment, research until now has failed to directly investigate the role of language in humans' changing experience of nature, or to assess the use of nature words in a real speech community.» (Luthin 2020:711)

Nature language extinction and decline of biodiversity seem to be intertwined phenomena, followed by the escalating substitution of nature vocabulary, outdoor lexicon, with "indoor" terms.

Words once used in wildlife and countryside contexts are now mainly referring to computer or commercial terms; a short selection of these terms includes *Apple, tweet, Blackberry, web, stream, Cloud, field, branch, net, and fiber*.

In its 2007 edition, the Oxford Junior Dictionary "evicted" many terms related to the natural world and generates a rising number of protests:

«British authors, environmentalists, and thinkers claiming that the removal of the fifty-some nature related words and names from the children's dictionary (including blackberry, acorn, badger, buttercup, otter, and wren)—and the simultaneous addition of "indoor" and technology-related terms (such as Blackberry, chatroom, broadband, and cut-and-paste)—was symptomatic of the growing divide between people and the natural world.» (Luthin 2020: 710).

Starting form this episode that ignited many reactions among British thinkers, I have considered the Italian scenario, embarking in inception research on the intertwined relations between HNC and nature vocabulary. Designing evaluative assessment tools to collect complex data systematically exceeds the scope of this work; however, I found it necessary to establish a few benchmarks:

- Italian as L1 and its interference with L2 or any spoken dialect;
- Nature knowledge and lexicon multiple sources: books, media, direct experiences in natural contexts;
- Areas of residence urban or rural
- Socio- economic and cultural backgrounds;
- Nature terms pertaining to fauna and flora in native or exotic wildlife;
- Family's role in passing on nature awareness and know-how.

This study focuses on gathering straightforward linear data about British *lost words* in the Italian context; work is in progress, but we dispose of some relevant data that allows to identify some main trends.

An introductory questionnaire was given to primary and secondary school students, administered by teachers as in a normal class activity. Key class details collected included student count, gender, age group, native language other than Italian, location (urban or rural) and general socioeconomic status. Students were asked if they knew selected *lost words*, where they learned them (nature, books, media), and whether they could use or understand these words in idioms and figurative language.

Students who have taken the questionnaire in the schools so far are 98: 66 children in primary school, aged 9-10, both from rural and urban background, generally from a low-income status in Piemonte region; and 32 in the middle school aged 10-11, 13 from an urban location, in Rome, with an average high income background; females and males were equally represented, while foreign students were 4, second generation students 3.

Aside from this selected group, another small heterogeneous sample (10 children), aged 7-14, both from North -East Italy and from Rome, was given the same questionnaire on a voluntary basis and subsequently interviewed on the sources of their nature-related knowledge.

The questionnaire contains 11 words randomly taken from the deleted words in Oxford Junior Dictionary 2007 edition, plus *vipera*, viper, that has an extensive use in both Italian and British language, instead of the word adder, in Italian marasso, removed in the dictionary, to test if at least the easiest term would be familiar; the others are as follows: *acorn, otter, bramble, wren, chestnut, dandelion, kingfisher, bluebell, heath, blackberry, magpie*.

Three of these words (viper, wren, chestnut) have been used in idiomatic expressions to see if children understand their figurative meaning.

Data show that almost all these words are largely familiar to children, with the exception of *dandelion* (only 2 would know its meaning) and *kingfish*; direct experience in nature appears to be the first source for knowing these natural elements (except for one class, 22 primary students aged 9-10, rural location, low income background, who indicated as primary source *media, movies and cartoon* (12 students) while the other 10 students in equal proportion refer to *direct experience in nature* (5) and *books and textbooks* (5)); in a different class group (22 kids) of the same age, *scricciolo* (wren) has been confused with *scricchiolio* by two kids; as per *gazza* (magpie), 2 students of the same group understood *Gaza* and *garza* (gauze).

While an entire class (22 primary children, 1 foreigner, aged 9-10, urban context and low-income background) could understand the idiomatic expression *essere uno scricciolo* (wren), which means “to be a little person”, they did not know the bird

itself; their peers in another class, 22 students, did not know neither the word nor the idiom.

It must be underlined that the Italian language usually adopts English technology related terms and does not translate them, so kids do not misunderstand the nature lexicon and its tech analogue (as it might happen in English with Blackberry, Apple etc.) and that none of the terms in the list would resemble any technology related vocabulary.

The entire sample group of primary school could neither understand, nor use the idiomatic phrase that involves *chestnut* (*essere preso in castagna,* "to be caught red-handed") and only two kids in middle school, aged 10-11, did know it; also the *essere inviperito* and *essere una vipera* (to be enraged and to be irascible and malignant) are scarcely understood in age group 9-10: on 66 children, only 7 could understand and use *essere inviperito*, and 18 *essere una vipera*.

Results show that also kids in Middle school in general struggle with figurative language, but some gaps are filled: *essere inviperito* is understood by 3 kids out 16 aged 13 and *essere una vipera* by 5 out of 16; in kids aged 10-11 though, the ratio is different: 10 students out of 16 explained correctly *essere inviperito* and 14 out of 16 *essere una vipera*.

The small sample individually interviewed confirms this trend. Kids have indicated that many of the terms they knew and the nature knowledge they think to have is rooted in passions they shared with parents and close relatives, cultivated since early years; media seem to play a relevant role for acquiring nature related information and knowledge. For example, for two children names of birds were very well known since they share this passion with their uncle and he gave them a book to learn from; a girl stated that she heard many words in everyday talking within the family; one kid aged 14 said he would learn about nature by regularly following blogs and programs also available on YouTube, such as Barbascura's *La natura fatta male* and *I 72 animali più pericolosi al mondo*.

Some words being more used and known and others less, data show that they are still living language among the children.

Conclusions

Urbanization, indoor life dimension and the vanishing of native wildlife pose a threat to both human and natural environments. The reduction of experiences in natural habitat affects how children understand nature and talk about it. Nature knowledge and vocabulary might decrease and be lost for next generations: the less we know and understand, the less we also struggle to protect our fauna and flora,

therefore ecological literacy appears to be one of the most urgent pedagogical challenges.

References

Antonietti M., Bertolino F. (2017). A tutta natura! Nuovi contesti formativi all'aria aperta per l'infanzia di oggi, Parma: Edizioni Junior.

Appadurai A. (1996). Modernity at large. Cultural dimension of Globalization, Minnesota: Public Worlds series.

Augé M. (2009). Nonluoghi, Eléuthera Milano.

Balmford (2002). Why Conservationists Should Heed Pokémon. Science.

Bertolino F., Piccinelli A., Perazzone A. (2012). Extraterrestri in campagna. Quando insegnanti e ragazzi sbarcano in fattoria didattica, Mantova: Negretto.

Capra F. (2007). Sustainable Living, Ecological Literacy, and the Breath of Life, Canadian Journal of Environmental Education, 12.

D'Antone A., Parricchi M. (a cura di) (2018). Pedagogia della natura. Epistemologia, prassi, ricerca, Edizioni Zeroseiup.

Del Gottardo E., Nicolai E. (2018). *Passaggio in Pakistan. L'immagine del bambino fra pressioni culturali e prospettive di globalizzazione,* in *Questioni di pedagogia sociale* a c. di Del Gottardo E., Napoli: Giapeto Editore: 31-54.

Del Gottardo E., Nicolai E. (2021). Breviario Pakistano, mappe interculturali e prospettive pedagogiche, Bari: Progedit.

Del Gottardo E., Nicolai E. (2024). Curre et labora. Chi vive di lavoro?, in MeTis. Mondi educativi. Temi, indagini, suggestioni 14(1): 87-104.

Gibson James J. (1979). The ecological approach to visual perception, New York: Psychology Press

Giusti M, Svane U, Raymond CM and Beery TH (2018). *A Framework to Assess Where and How Children Connect to Nature*. Front. Psychol. 8:2283.

Gjergji I. (2021). Istruzione 4.0: l'impatto della digitalizzazione sul lavoro dei docenti scolastici in Italia, in Antunes R., Basso P., Perocco F., (a c. di), Socioscapes

International Journal of Societies, Politics and Cultures 2: Il lavoro digitale. Maggiore autonomia o nuovo asservimento del lavoro?, PM edizioni: Milano.

Guerra M. (a cura di) (2001). Fuori. Suggestioni nel rapporto tra educazione e natura, Franco Angeli, Milano 2015, L. Mortari, Per una pedagogia ecologica, Milano: La Nuova Italia.

Louv R. (2005). Last Child in the Woods: Saving our Children from Nature-Deficit Disorder, Atlantic Books.

Luthin M. (2020). *Loss for Words: Attrition of Nature Vocabulary Among Younger Speakers in a Montana English Speech Community*, Montana State University, Bozeman MT, 710: 720.

Mansour, M. E., Kotagal, U., Rose, B., Ho, M., Brewer, D., Roy-Chaudhury, A., Hornung, R. W., Wade, T. J., & DeWitt, T. G. (2003). Health-related quality of life in urban elementary schoolchildren. *Pediatrics*, *111*(6 Pt 1), 1372–1381.

Michéa J. C. (2014), Le complexe d'Orphée. La gauche, les gens ordinaires et la religion du progrès, Flammarion

Nicolai E., & Del Gottardo, E. (2025). Modernized inequalities: the approach of philological pedagogy. Giornale italiano di educazione alla salute, sport e didattica inclusiva, 9(2).

Paparella N., Del Gottardo E. (2023). Bambini intraprendenti. La scuola in campagna, Milano: Franco Angeli.

Raman R., Das P., Mandal S., Vijayan V., Amritesh AR, Nedungadi P. (2024). The impact of Gen Z's pro-environmental behavior on sustainable development goals through tree planting. Sustainable Futures, Volume 8.

Richardson, M. (2025). Modelling Nature Connectedness Within Environmental Systems: Human-Nature Relationships from 1800 to 2020 and Beyond. *Earth*, *6*(3), 82.

Rist G. (2013). Le développement - 4 édition: Histoire d'une croyance occidentale, Paris: Les Presses de Sciences.

Scarinci A. (2021). Il bosco nell'aula. Progettare l'educazione ambientale, Bari: Progedit.

Schenetti M., D'Ugo R. (2022). Didattica, Natura, Apprendimenti. DNA, strumento di valutazione per la qualità dell'educazione all'aperto, Milano: Franco Angeli.

Stiegler B. (2023). L'emploi est mort, vive le travail!, Paris : Mille et une Nuit.

Tillmann, S., Clark, A. F., & Gilliland, J. A. (2018). Children and Nature: Linking Accessibility of Natural Environments and Children's Health-Related Quality of Life. *International Journal of Environmental Research and Public Health*, *15*(6), 1072.

Vallega A. (2004), Geografia umana. Teoria e prassi, Firenze: Le Monnier.

Sitography

https://www.cabidigitallibrary.org/do/10.5555/blog-genz-outdoors-nature/full/

https://grist.org/language/nature-word-language-disappear-culture/

https://www.ipsos.com/it-it/caratteristiche-generazione-z-mito-realta