

Learning from nature from artistic practices: nature schools and the potential for basic education in the context of Portugal¹

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ABSTRACT

The increasing detachment of children from the outdoor spaces and their surroundings has raised educational challenges that demand new pedagogical approaches. This article explores the relationship between learning, nature, and art in the Portuguese context, and analyzes initiatives that integrate outdoor education and artistic practices to foster a deeper connection with the environment. The Nat_CRIA+ study is presented, investigating the impact of nature exposure on the creative development of primary school children. The results highlight the pedagogical and transformative potential of these practices, reinforcing the need to integrate them into educational models to enhance creativity, ecological awareness, and critical thinking.

KEYWORDS: Forest School. Artistic practices. Nature. Outdoor activities. Primary education.

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Aprender com a natureza a partir de práticas artísticas: escolas da natureza e o potencial para o ensino básico no contexto de Portugal

RESUMO

O crescente afastamento das crianças dos espaços exteriores e de seu entorno tem suscitado desafios educativos que demandam novas abordagens pedagógicas. Este artigo explora a relação entre aprendizagem, natureza e arte no contexto português, e analisa iniciativas que integram o ensino ao ar livre e práticas artísticas como ferramentas de aproximação ao meio natural. Apresenta-se o estudo Nat_CRIA+, o qual investiga o impacto do contato com a natureza no desenvolvimento criativo das crianças do 1.º ciclo do Ensino Básico. Os resultados destacam o potencial pedagógico e transformador dessas práticas, reforçando a necessidade de incorporá-las nos modelos educativos de modo a estimular a criatividade, a consciência ecológica e o pensamento crítico.

PALAVRAS-CHAVE: Escola da Floresta. Práticas artísticas. Natureza. Atividades ao ar livre. Ensino básico.

Aprender de la Naturaleza a partir de prácticas artísticas: escuelas de la naturaleza y el potencial para la educación básica en el contexto de Portugal

RESUMEN

La creciente desconexión de los niños de los espacios exteriores y de su entorno ha suscitado desafíos educativos que requieren nuevos enfoques pedagógicos. Este artículo explora la relación entre aprendizaje, naturaleza y arte en el contexto portugués, y analiza iniciativas que integran la enseñanza al aire libre y las prácticas artísticas como herramientas para acercarse al medio natural. Se presenta el estudio Nat_CRIA+, que investiga el impacto del contacto con la naturaleza en el desarrollo creativo de los niños del primer ciclo de Educación Básica. Los resultados destacan el potencial pedagógico y transformador de estas prácticas, subrayando la necesidad de incorporarlas en los modelos educativos para fomentar la creatividad, la conciencia ecológica y el pensamiento crítico.

PALABRAS CLAVE: Escuela del bosque. Prácticas artísticas. Naturaleza. Actividades al aire libre. Educación primaria.

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Introduction

In an increasingly urbanized and virtualized world, children's contact with nature has been progressively reduced, affecting, among other things, their personal and intellectual development, as well as the way they interact with the natural environment. In the educational context, this distance implies significant challenges by requiring new pedagogical approaches that value, for example, direct experience with the natural environment. Outdoor learning, promoted by educational models such as schools in nature, has been shown to have a positive impact on child development, providing opportunities for exploration, autonomy, and creativity. At the same time, artistic practices that interact with nature play a crucial role in the perception and appreciation of the environment, fostering an ecological awareness based on plastic expression and sensory experience.

In this paper we explore the relationship between learning, nature, and art in the context of Portugal, by analyzing initiatives that integrate outdoor teaching and artistic practices that promote a greater connection with the natural environment. Additionally, we present the Nat_CRIA+ study, which investigates the impact of contact with nature on the creative development of children in the 1st cycle of Primary Education. From this approach, we seek to reflect on the relevance of nature as a space for learning and artistic creation, highlighting its pedagogical and transformative potential for the personal and social development of children.

Schools in nature

In a context of increasing urbanization and virtualization, children spend more and more time indoors, increasingly removed from the outdoors and direct contact with nature.

In recent decades, there has been a decline in the time children spend outdoors independently. As a result, they have less opportunity to learn how to manage risk for themselves. Giving children opportunities to take risks can compensate for this gradual loss of freedom (Gill, 2014, p. 5, our translation).

This reality has driven the adoption of educational models that privilege outdoor learning, such as schools in nature, in which pedagogical practices are centered on the direct relationship with the natural space. Schools in nature emerged at the beginning of the 20th century, initially as a response to the need to contain diseases such as tuberculosis, highlighting the first experiment in Charlottenburg, Germany (1904). These first examples were related to health, both in terms of social isolation and proximity to more pristine environments, without pollution. Later, they were recommended in international congresses and spread to several European countries, following pedagogical principles of educators such as John Dewey (1938), who valued learning through direct experience with nature.

The enclosed space of the classroom allows the teacher to control the behavior of the students. In the open space, the controlling attitude needs to be replaced by that of a learner, co-responsible and guider, because nothing in nature is controllable; it is radically spontaneous and influences visitors instantly (Mendonça, 2014, p. 35, our translation).

In Portugal, the first open-air school was founded in 1913, in Tomar, by Vidal Oudinot, aimed at children from disadvantaged backgrounds. In it, excursions and practical classes in contact with nature were used (Figueiredo, 1992) and, despite its good results, the initiative ended up being discontinued.

In the 1950s, Denmark introduced *Forest Schools*, a concept developed by Ella Flatau, which quickly spread to Scandinavia and other countries (Knight, 2013). In these contexts, children spent between four

and six hours a day in spaces in nature, in activities free of exploration and with little limiting supervision (Tremonte, 2019). These pedagogical models stand out for their experiential and experimental approach, in order to promote a complete development of children from the interaction with the natural environment. Over the years, the number of institutions and countries that offer these programs has continued to grow. However, the educational practice:

[...] varies according to the country in which it is developed [...] precisely because it is a proposal directly related to the natural environment, the landscape, and the way each culture understands and relates to nature (Casanova, 2019, p. 61, our translation).

Currently, in Portugal, there are several educational initiatives and projects that integrate nature into primary education, mostly focused on the *Forest School methodology*. These projects adopt different pedagogical approaches, ranging from conditioned and objective contact, such as experimental and scientific activities, to freer approaches, based on exploration and contemplation of the natural environment.

Among the most relevant initiatives, the following stand out: Escola Lá Fora, in the Lisbon region, which promotes monthly meetings to stimulate the social, emotional, and motor development of children (Escola lá Fora, n.d.); Escola da Floresta, in Cascais, which offers a free weekly program for public school students (Escola da Floresta, n.d.); Patas Tenras, in Lisbon, a certified project at *Forest School* that encourages children's autonomy and curiosity (Patas Tenras, n.d.); Bosque Escola das Avelãs, in Marvão, which integrates artistic areas, such as music and theater, in outdoor learning. Other initiatives that highlight learning in contact with nature include: the Firefly Forest, in Gondomar; Lutra Ensino *Outdoor*, in Lisbon; Raízes, in Ameixoeira; Keti Keta, in Aveiro; Invisible Limits, in Coimbra; Canto dos

Piscos, in Montemor-o-Velho; Quinta do Reguengo, in Lousã; and Colégio da Beloura, in Sintra. In addition to these projects, *Aprende na Floresta* (2022), developed in partnership with five schools in the north of Portugal, and *Tribo Terra*, in Ovar, stand out.

These projects have shown a positive impact on the development of children in the 1st and 2nd cycles of Primary Education (Bai *et al.*, 2015). Initiatives such as these have gained relevance, reflecting a growing trend to integrate outdoor learning into the school curriculum, considering its potential in developing skills such as resilience, creative thinking, autonomy, interaction, among others.

Learning from art

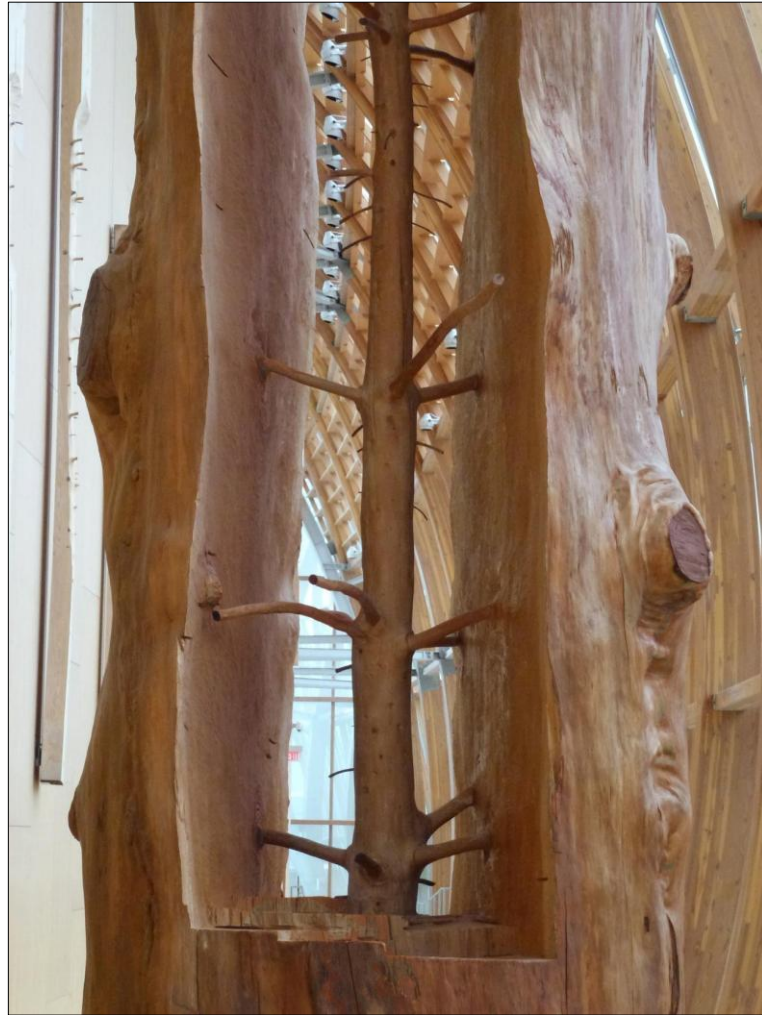
Over the centuries, several artists have sought deep knowledge in nature and in direct contact with the territory. If, in Romanticism, nature is capable of expressing something in subjects, it is in the movements of *Land Art*, *Ecological Art*, and *Arte Povera* that the most evident expressions of this type of approach can be found. In these movements, artists seek to interact with nature, to produce from it or to reflect on it in their initiatives. In artistic practice, interaction with the natural environment promotes a perception and appreciation of the environment, transforming it through human and cultural experiences. Many artists who use natural materials are moved by sensory and emotional experiences, as well as by a deep connection with places and their elements (Kastner; Wallis, 1998).

Some artists create works that are intrinsically linked to the environment, places and materials from these spaces, resulting in works with an authentic language that is deeply rooted in the relationship with nature. In addition, the natural environment is often used for critical reflection and awareness about the state of the ecosystem, as observed in *Ecological Art*, which promotes a reflection on the destruction and excessive exploitation of nature. In addition to being a source of creative inspiration, nature plays a

crucial role in social and environmental criticism (Kastner; Wallis, 1998). This interaction allows not only to experience the works, but to experience them and, sometimes, to transform them beyond simple contemplation (Bourriaud, 2003). According to Bourriaud (2003), art based on observation and interaction with the natural world offers artists a privileged means to problematize issues such as ecology, sustainability, and the human condition itself in the contemporary context.

Both *Land Art* and *Arte Povera* value the relationship between the work and the space in which it is, seeking to include the viewer in a more direct and sensorial way, questioning the way art should be seen and experienced (Knon, 2002). On the other hand, *Ecological Art*, unlike *Land Art*, which focuses essentially on interventions specific to natural spaces, emphasizes sustainable practices, often directed towards solving ecological issues (Thornes, 2008). Thus, these movements have in common the recognition of nature as a creative promoter, assuming it as a theme, material, support, and, above all, an active element that drives the entire creative process, and often provokes a reflection on social, cultural, political, and environmental issues.

FIGURE 1: *The Hidden Life Within* – Giuseppe Penone, wood, 2000-2003.



Source: <https://share.google/kdWFog7RXO2ov6coR>.

Authors such as Richard Long (1945-), who uses sediments and earth to replace paint and carry out artistic interventions, or stones collected and organized in geometric shapes; Giuseppe Penone (1947-) (Figure 1), who seeks to recover the ancestral presence of nature inside wooden trunks, or by directly interfering in natural growth; Alberto Carneiro (1937-2017), who used practices used by farmers in his region of origin, or drawn actions that repeat wind or water, or pictorial procedures that incorporated natural materials, such as pollen; or even Frans Krajcberg (1921-2017), a Polish author, who went to live in the Amazon, working with materials collected from the destruction of the forest, creating works of art that intended to

promote the importance of protecting nature and its elements, including the original peoples. Krajcberg used burnt roots, natural residues, and organic pigments to question the viewer about the complexity and fragility of the ecosystem (Oliveira, 2015).

The German Mario Reis (1953-) is another significant example, with a long project called *Nature Watercolors*, in which nature expresses itself directly on a horizontal surface and leaves its marks. In it, Reis installs screens in the beds of several rivers around the world, allowing vegetable and mineral residues to accumulate on the support. The canvases remain in place for several days, and the result reflects the forces and changes of nature during the period (Grande, 2004).

That said, nature offers a dynamic and interactive relationship, allowing us to explore, stimulate reflections, and question concepts related to social, political, and environmental contexts. For many artists, natural materials are worked based on sensory and emotional experiences, in addition to the deep connection with places and their elements (Kastner; Wallis, 1998). This analysis reveals that nature is rich in experiences, both for the artist and the spectator, by inspiring the creation of works that promote participation and provide a space for dialogue and reflection on the surrounding environment (Bourriaud, 2003).

Study Nat_CRIA+

Based on pedagogical projects that demonstrate the benefits of the relationship with nature in the short, medium, and long term, the study Nat_CRIA+: Study on the experience of nature as a creative source and the pedagogical potential in the 1st cycle of Primary Education was implemented. This study is part of the doctoral project in Art Education: “Walking through the forest: the practice of artists to stimulate a greater proximity to nature as a creative source” (Couto, 2025). This study aimed to assess how direct contact with nature can enhance the intellectual and creative development of

elementary school children, starting from artistic practices developed by authors who prefer a direct relationship with the natural environment.

The approach of this study is inspired by the work of artists such as Alberto Carneiro, whose work is based on tactile experience and the physical relationship with natural materials (Amarante, 2015). In his practice, Carneiro reflects the connection between man and nature, highlighting that the “use of nature as matter in the work has to do with the awareness or the search that the fundamental thing is the energy that comes out of things and circulates between them” (Carneiro *apud* Amarante, 2015, p. 23, our translation).

Similarly, Frans Krajcberg combines art and ecological activism, using natural materials, such as charred trees and natural pigments, to denounce the destruction of nature and raise awareness of the importance of harmonious coexistence as a natural environment (Saldanha, 2013; Valio, 2021). “When I see the material, I see that it will yell at me and that is my job” (Krajcberg, 2013, our translation). From approaches such as those of Carneiro and Krajcberg, it is possible to promote educational activities that include artistic creation and elements collected in nature, fostering both creativity and environmental awareness.

The study was applied at the Primary School (E. B.) of Vairão and E. B. de Touguinha, in Vila do Conde, and at the Lomba Residents’ Association, Porto, in Portugal. Participants were 66 children (29 girls and 37 boys), aged between 6 and 10 years, distributed between the 1st and 4th year of the 1st cycle. Thirty-eight of the participants lived in a rural context, 15 in a mixed context, and 13 in an urban context. During six 90-minute sessions, participants explored nature through interaction and experimentation with natural elements, such as plants, organic matter, and minerals. The activities also included direct contact with natural phenomena, such as sunlight, wind, and rain. Activities were developed both in the internal and external space, originating from the practices of the artists Alberto Carneiro, Frans Krajcberg, Richard Long, as well as the artistic practice of the study’s author, Sabina Couto (Figure 2).

FIGURE 2: a) Painting with mud; b) Painting with natural brushes, 2024.



Source: authors' collection.

The analysis tools adopted included questionnaire surveys, creativity assessment tests, direct observation, dialogic analysis, and *follow-up surveys*. Quantitative and qualitative analysis allowed us to assess the impact of contact with nature on the development of children's creativity, considering different socio-geographical contexts. The analysis of the collected data showed significant differences between the participating groups and confirmed the influence of the surrounding environment on the frequency of interaction with natural spaces, on the perception of the forest as an educational environment, and on the receptivity to outdoor activities.

The surveys indicated that the children of the E. B. of Vairão and the E. B. of Touguinha, inserted in a rural context, showed greater familiarity with green spaces and a more positive attitude towards activities in nature. On the other hand, the children of the Lomba Residents' Association, in an urban environment, initially showed a greater distance in relation to this environment.

Regarding the creativity assessment tests (TCT-DP), there was progress in all groups from the pre-test to the post-test. The group of the Lomba Association stands out, which, despite the urban context and the reduced previous exposure to nature, presented the highest percentage evolution in creativity (54.51%). This result suggests that introducing outdoor activities can have a particularly positive effect on children with fewer opportunities for

contact with nature, reinforcing the importance of integrating creative experiences in natural spaces into the pedagogical context.

The results show the importance of integrating educational practices that promote greater contact with nature, not only to stimulate creativity, but to strengthen children's connection with the environment. Parents' lack of time to provide outdoor experiences reinforces the essential role of schools in promoting these activities.

Conclusion

The relationship between nature, art, and education is essential for the integral development of children, providing enriching experiences that stimulate creativity, sensory perception, and environmental awareness. Direct contact with the natural environment, promoted by initiatives such as schools in nature and artistic practices inspired by interaction with the environment, contributes to more meaningful and experiential learning. The Nat_CRIA+ study demonstrated that such approaches can significantly enhance the creative development of children, especially those with less prior access to natural spaces.

The results reinforce the need to rethink current educational models, integrating more and more outdoor experiences and artistic activities that value the relationship with nature. By providing opportunities for exploration and experimentation, these practices not only foster creativity and critical thinking but also promote a sense of ecological responsibility. Thus, advocating for an education that values interaction with nature contributes to the formation of individuals who are more aware and committed to sustainability and the future of the planet.

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