

## The critical and transformative constructivism for landscape education

### ARTICLE

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### Abstract

This paper constitutes a critical essay on Landscape Education proposing the integration of critical constructivism pedagogies and transformative education in this still innovative educational field in Brazil. It is discussed that learning in landscape can occur more broadly, encompassing different age groups, sectors, disciplines, cultures, and institutions, adopting inclusive strategies. Landscape-based learning can contribute to scientific and environmental literacy, the appreciation of cultural and natural heritage, the promotion of sustainability, and resilience in our landscapes. The text highlights the importance of a participatory and collaborative approach in Landscape Education, involving schools and the local community in building sustainable solutions for environmental and social challenges. The paper also provides a discussion of the concepts of John Dewey, Paulo Freire, and other education theorists to argue that Landscape Education can be a powerful tool for the formation of critically aware and politically engaged citizens.

**Keywords:** Landscape-Based Learning. Sustainable Development. Citizen Formation. Scientific Education. Environmental Education.

### Critical and transformative constructivism for landscape education

### Resumo

Este trabalho consiste em um ensaio crítico sobre Educação em Paisagem que propõe a integração entre pedagogias do construtivismo crítico e a educação transformadora nesse campo educacional ainda inovador no Brasil. Discute-se que a aprendizagem em paisagem pode ocorrer de maneira mais ampla, abrangendo distintas faixas etárias, setores, disciplinas, culturas e instituições, assumindo estratégias inclusivas. A aprendizagem baseada na paisagem pode contribuir para a alfabetização científica e ambiental, a valorização do patrimônio cultural e natural, a promoção da sustentabilidade e da resiliência em nossas paisagens. O texto destaca a importância da abordagem participativa e colaborativa na Educação em Paisagem, envolvendo a escola e a comunidade local na construção de soluções sustentáveis para os desafios ambientais e

sociais. O texto também proporciona a discussão de concepções de John Dewey e de Paulo Freire e outros teóricos da educação para argumentar que a Educação em Paisagem pode ser uma ferramenta poderosa para a formação de cidadãos críticos e politicamente engajados.

**Palavras-chave:** Aprendizagem Baseada na Paisagem. Desenvolvimento Sustentável. Formação Cidadã. Educação Científica. Educação Ambiental.

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### 1 Introduction

In order to train individuals to deal with current socio-environmental issues of a transformative nature in the context of education (Hodson, 2003, 2011), the foundations that underpin scientific knowledge are indispensable for learning science, learning about science, doing science, and applying scientific practices that contribute to citizenship education across different areas of knowledge. As noted by Hodson (2011), scientific literacy is increasingly relevant to global discussions on science education, "reflecting a trend that aligns with the growing interest in technological literacy and environmental literacy" (Hodson, 2011, p. 1).

In this sense, it is appropriate to say that landscape-based teaching and learning can also support scientific literacy and knowledge and help foster a sense of cultural identity and connection with both material (tangible, physical, and perceptible by the senses) and immaterial (intangible, abstract, symbolic, emotional, and value-laden) aspects of nature, which contributes to human self-esteem and resilience in their surrounding environment. Furthermore, educating through landscapes aligns with Hodson's (2003) argument about the need to train scientifically and politically literate citizens who are not content with the role of what he calls "armchair critics" to solve current social and environmental problems.

Thus, landscape education emerges as a transformative educational practice with the potential to help individuals achieve their aspirations and ideals throughout their educational journey, playing a crucial role in overcoming their present realities and equipping them with the skills needed to shape their own futures.

Landscape education is an innovative educational movement that transcends the school environment, transforming the surrounding space into an open-air laboratory that

fosters teaching and learning (Table 1). Through interaction with the natural and cultural environment, students become active agents in the pursuit of a more sustainable and just society.

**Table 1 - Attributes and descriptions of Landscape Education**

Attribute	Description
<b>Concept</b>	A philosophy that recognizes and values the interconnection between humans and the environment.
<b>Scope</b>	Transversal to all disciplines and areas of knowledge, since it considers the multifaceted concept of landscape.
<b>Methodologies</b>	Experiential learning, project-based learning, critical environmental education.
<b>Benefits</b>	Improved student performance, a greater sense of social and environmental responsibility, strengthening of citizenship, appreciation of local culture, promotion of individual and collective health and well-being.

Source: Prepared by the authors.

Not limited to a single method or discipline, this educational philosophy values the interconnection between human and the environment, fostering the development of essential skills such as critical thinking, problem-solving, and social responsibility (Crespo, 2017, 2021; Crespo *et al.*, 2023). Landscape education can bring benefits from an educational-formative point of view. This requires a change of perspective that goes beyond "teaching about the landscape", in terms of the concept alone, and adopting an action-research approach linked to collective involvement to educate in landscape, stimulating perception, observation and interpretation as pathways to learning.

Its contribution involves overcoming some of the challenges associated with the concept of landscape, which is currently multifaceted and multidisciplinary due to the vast range of knowledge areas and interpretations it encompasses. It is worth reflecting on the practical and epistemological challenges that this approach represents and faces. Although Landscape Education promotes the idea of learning that is integrated with the environment, one must be aware of the possibility that this proposal will remain in the realm of idealism if there is no systematic effort to connect theory and practice. For example, how can we

ensure that interaction with the environment really results in meaningful learning and not just one-off or superficial activities?

It is also essential to question whether student protagonism can be genuinely fostered, overcoming educational practices that reproduce traditional hierarchies and restrict autonomy in the process of knowledge construction. Therefore, landscape education should be viewed as a disruptive strategy capable of shaping citizens actively engaged in socio-environmental transformation, rather than merely serving as a complementary teaching tool.

It should be emphasized that both advocating for and practicing landscape education involve significant challenges, such as balancing the scientific rigor required for landscape analysis with the recognition of subjectivity and individual experience, which are fundamental to this approach. Nonetheless, many educational practices still prioritize traditional and technical methods, neglecting the integration of prior experiences and memories into teaching. This calls for innovative and context-sensitive methodologies, which are often unavailable within standardized educational systems.

Additionally, the training of qualified educators is a critical factor, as it requires an understanding of landscape concepts, constructivist theories, and the specificities of knowing, comprehending, and implementing landscape education. This approach also demands sensitivity to the cultural and social particularities of the communities involved, ensuring that generalizations and conflicts of interest related to land use and preservation are avoided. Although its transformative potential is evident (Crespo, 2017, 2021; Crespo *et al.*, 2023), overcoming structural barriers — such as rigid curricula, lack of teaching resources, and unequal access to education — is essential. To achieve its goals of social transformation, landscape education must therefore be supported by inclusive public policies and educational practices that promote social justice, equity, and citizen education, incorporating the landscape in all its dimensions.

When addressing the need for an educational approach that goes beyond the mere transmission of knowledge about landscapes, constructivist learning theories provide a solid foundation for a dynamic and participatory learning process. These theories

emphasize learning as an intrinsic action connected to the environment, highlighting the importance of a critical and reflective perspective in education. The interaction between individuals in the process of knowledge construction aligns closely with the principles of landscape education, which relies on the prior experiences and evoked memories of those engaging with it. By integrating constructivism with practical application, landscape education prepares students for professional and social challenges, encouraging participation through interpretations grounded in real-world environmental experiences.

Although constructivist theories provide a theoretical foundation for landscape education, adaptations are necessary to account for the cultural and environmental specificities of each context. While emphasizing subjectivity and individual memories contributes to the construction of personal meaning, it may also limit the acquisition of essential technical knowledge needed to address complex issues such as environmental conservation. Furthermore, implementing participatory approaches within educational systems that often face financial and infrastructural constraints presents additional challenges. In this sense, landscape education must strike a balance between valuing individual experiences and fostering the acquisition of objective knowledge to ensure meaningful and effective learning that meets contemporary social and environmental demands.

In this context, the educational theories of John Dewey and Paulo Freire provide pedagogical principles and methodological choices that emphasize learning as an active and transformative experience. Dewey, with his focus on education as a continuous process of reconstructing experience, underscores the importance of action and interaction with the environment as central elements of meaningful learning. For him, education is not merely about transmitting information but rather about solving real-world problems and fostering active student participation in the construction of knowledge.

Similarly, Paulo Freire, through his liberating pedagogy, emphasizes dialogue as a fundamental tool for social awareness and transformation. He advocates for a dialogical approach to education, in which educators and students learn together through the exchange of knowledge and experiences. Both theories align in demonstrating that learning

cannot be reduced to purely cognitive aspects or the unilateral transmission of content. On the contrary, Dewey and Freire both argue for the necessity of a critical and reflective stance, grounded in a cultural framework that considers the social context and learners' prior experiences.

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Learning, therefore, materializes through the dynamic interaction between individuals and their environment, mediated by dialogue, reflection, and transformative action. This perspective can be implemented through careful observation of reality, constant questioning of the world, and the appreciation of solutions proposed by individuals, built upon dialogue, prior knowledge, and new information. These principles align with Landscape Education, which is exemplified by various studies that describe the foundations integrating it into a constructivist and critical dimension, capable of preparing students for participatory professional and social realities (Crespo, 2017, 2021; Crespo *et al.*, 2023; De la Vega, 2018; Fernández Álvarez, 2019; Martínez-Medina; Ávila-Marín, 2021). These realities are shaped by previous experiences lived in the territory and the memory records that emerge when contemplating landscapes (De la Vega, 2018). The experiences documented by these authors highlight the fundamental role of learning through landscape-based practice. In this context, although landscape analysis is often grounded in the scientific method for describing and characterizing elements, interactions, and processes, it is crucial to recognize that part of the methodological models used in these processes is influenced by subjective interpretation and depends on the individual's experience with the landscape (Fernández Álvarez, 2019).

Thus, considering constructivism in landscape education, this approach stands out in teaching by enabling the construction of knowledge based on both individual and collective experiences, fostering the exchange of ideas and the development of critical thinking. However, to what extent do these experiences ensure a solid and replicable understanding, particularly in contexts where scientific rigor is necessary to support practical actions? Furthermore, how can the inherent subjectivity of landscape interaction be balanced with the need for systematic approaches that address different cultural and social realities? These questions highlight the importance of critically integrating subjective

and objective dimensions, preventing Landscape Education from becoming excessively fragmented or limited to personal perceptions.

In the current Brazilian educational landscape, where the urgency to address environmental and social crises is increasingly evident, the proposal to educate through landscape emerges as an essential approach to aligning pedagogical practices with the demands of an interconnected world. For instance, by incorporating the principles of Edgar Morin's Planetary Education and the Eco-Pedagogy of Francisco Gutiérrez and Moacir Gadotti — both influenced by Paulo Freire — a perspective is introduced that challenges the traditional boundaries of the classroom, making the landscape a living and dynamic space for critical and reflective learning. Eco-Pedagogy, as an educational movement focused on sustainability and social transformation, complements Morin's vision by emphasizing the role of education in forming planetary citizens. Through landscape-based pedagogical practices, students can thus be engaged in understanding the interdependence between human and natural systems, promoting a systemic way of thinking that transcends disciplinary fragmentation.

This does not imply adopting constructivism as the sole theoretical framework applied to landscape education, nor does it suggest replacing established epistemological approaches, particularly within the broad field of Eco-Social Education. Instead, it proposes an additional means of teaching through landscape.

To achieve this, it is not only necessary to define landscape but also to transfer and adopt its multiple concepts from an emitter to a receiver—an approach that goes beyond traditional teaching and learning methods. This is because it highlights the constructed nature of the landscape concept as a fundamental principle. This conception aligns with the idea of a “Espiral Construtivista” (Constructivist Spiral)<sup>1</sup>, which fosters actions such as identifying problems, formulating explanations, generating questions, and constructing new meanings, thus providing a transformative sense of reality derived from

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<sup>1</sup> Lima's (2016) "Constructivist Spiral" is a theoretical model of education that emphasizes learning as a dynamic and continuous process. In Landscape Education, it suggests that the understanding of the landscape occurs in an iterative, non-linear manner, reflecting its complexity and interconnectedness.

a critical and reflective stance in the interaction between subject and object (Lima, 2016). This concept resonates with the notion of the bond between individuals and their surroundings within the landscape context. It creates opportunities to make the idea of landscape the core of any observation, discourse, and, when applied to education, any learning process.

Furthermore, for landscape learning to occur more broadly—encompassing different age groups, sectors, disciplines, cultures, and institutions—it is essential to adopt inclusive strategies and train educators to work with the landscape across various subjects and educational levels. Regarding knowledge construction aimed at Landscape Education, Crespo *et al.* (2023) propose analyzing it by focusing on teaching practices and their significance in the training of future teachers. They discuss several studies and research findings that demonstrate the relevance of landscape teaching and its integration into school curricula, aiming to provide a comprehensive and well-founded perspective on the subject.

After presenting these arguments, the feasibility of constructivism as a foundation for Landscape Education becomes evident, complementing other existing theories.

This essay proposes the integration of constructivism with a transformative approach within the broader context of Eco-Social Education. It seeks to explore how constructivist approaches can be applied critically, encouraging students' active participation in transforming their perceptions of the landscape. In this way, the study offers insights for educators interested in innovative and socially engaged educational practices.

## 1.1 Development

By adopting the constructivist approach, the landscape is seen as a central and inviting object for student learning, following the concept of experience proposed by John Dewey (1859–1952), who highlights the importance of students' active interaction with the environment as a means of learning. Dewey advocates for a practical approach to education, based on the study of inquiry — particularly scientific inquiry — as a method in

which students actively learn through meaningful situations to construct knowledge and understanding. For him, the research process is multifaceted and interdependent, with intricate stages that require careful attention during investigation, ensuring that facts and concepts are examined not only for their consistency and reliability but also for their ability to solve problems (Brown, 2012).

Dewey's philosophy emphasizes the rationality of science, which is a fundamental and intricate component of his philosophical system, presenting viewpoints on scientific realism, constructivism, natural laws, causality, and the connection between values and science (Brown, 2012). Dewey argued that meaningful learning arises from active interaction with the environment, where direct experience and reflection on that experience lead to understanding. In this context, the landscape, as an investigative artifact, assumes a central role, functioning as a starting point for inquiry-based learning, aligning with Deweyan pedagogy. This approach seeks to understand the landscape as a unified entity and then proceeds to analyze and organize it into separate elements, interactions, and processes.

Dewey's concept supports Lima's (2016) "Espiral Construtivista" (Constructivist Spiral), previously mentioned, as applied to Landscape Education by enabling the identification of problems, explaining them, and generating questions that lead to learning — what Lima (2016) calls a "provisional synthesis" — while simultaneously fostering the pursuit of new knowledge, the formation of new meanings, and the appreciation of these findings in a "new synthesis." More than that, the Constructivist Spiral also incorporates influences from Paulo Freire's critical pedagogy, as it is problem-solving-oriented and based on a dialectical perspective of interaction and people's life experiences, aiming for autonomous learning and critical social transformation grounded in the landscape in which individuals live and construct culture.

John Dewey and Paulo Freire establish important connections with the concept of landscape in the educational context. Dewey, with his emphasis on experiential learning, highlights individuals' active interaction with the environment, conceiving the landscape as a privileged space for inquiry and knowledge construction. According to Dewey, direct

experience in the landscape enables the connection between the individual and the world, promoting reflection and understanding.

Paulo Freire, in turn, although not having centered the concept of landscape in his work, offers significant contributions through his critical pedagogy. Concepts such as territory and spaces of life, central to his approach, are directly connected to the landscape, understood as the space where social relations, everyday experiences, collective memories, and struggles for transformation manifest.

For Freire, the landscape thus becomes a space for critical awareness and social transformation. However, it is important to recognize that Dewey's and Freire's theories were not originally developed with a specific focus on the landscape. This adaptation may present some practical limitations, such as the need to develop specific methodologies for landscape analysis from their perspectives or the difficulty of operationalizing certain concepts in specific contexts.

In this sense, although there are relevant connections between Dewey's and Freire's theories and Landscape Education, the field still requires the development of interdisciplinary theoretical and methodological approaches that systematically integrate these contributions, seeking to overcome identified limitations and deepen the understanding of the landscape as an educational space.

## 2 Methodology

This paper was developed from a research study focused on analyzing the relationship between constructivism and Landscape Education. Initially, the research sought to understand aspects such as the active construction of meaning and the promotion of more engaging educational experiences in the landscape. In the second phase, the paper examined the application of constructivism from the perspective of Landscape Education, highlighting how this approach can foster the active participation of students in the construction of meaning and the re-signification of their perceptions of the environment.

This process was anchored in the theoretical contributions of John Dewey, with his emphasis on experiential learning, and Paulo Freire, whose critical and transformative approach to education was linked to the use of the landscape as an educational tool. The research also incorporated the idea that active learning, through observation, questioning, and problem-solving, is essential for the development of meaningful experiences connected to the socio-environmental reality.

As a result, the paper proposed the fusion of critical and transformative constructivism with Landscape Education, consolidating an approach that combines theoretical foundations and innovative pedagogical practices. This proposal aims not only to form reflective and engaged individuals but also to strengthen educational methods that promote environmental awareness and sustainability.

### 3 Results and Discussion

Assuming the existence of experiences in the landscape and that this can be directed to lead to a broader and more organized understanding of it, it becomes relevant to sensitize students and highlight their perceptions regarding its characteristic elements. In fact, this can be a fruitful path for them to learn to distinguish and assign values that, although initially sensory and emotional, have the potential to become cognitive values, laying the groundwork for critically understanding the landscape. According to Dewey (2015, p. 99), students “[...] have a love for new experiences, their intensity in extracting the last drop of meaning from each situation, their vital seriousness in things [...]”, which shows that they are, above all, interested in moving, communicating, exploring the world, building, and expressing themselves artistically. This represents a fertile scenario for the practical and operative aspects of the polysemy of the landscape as a didactic tool in itself, containing elements and processes that can be used for education, such as identifying, describing, and recognizing material elements – natural, heritage, and cultural – and immaterial elements, such as emotion, values, human relations, and nature, as well as the

recognition of its dynamism in terms of transformations from the past to the present and projections for the future (Cabral, 2018).

From a constructivist perspective, the acquisition of knowledge occurs in a meaningful way when students interact socially and take part in shared experiences within their social group (Vygotsky, 2011). In this line of reasoning, Dewey emphasizes the importance of the "learning by doing" approach in education, which places the landscape as a central element in this process. According to Dewey, solving any problem requires the application of learning and practice operations (Brown, 2012), and the landscape emerges as a valuable pedagogical tool, providing exploration and active involvement of students with the surrounding environment (Martínez-Medina; Ávila-Marín, 2021).

Landscape Education, based on critical constructivism, emphasizes students' active participation in learning, promoting perception, observation and interpretation. John Dewey and Paulo Freire influence this approach, highlighting students' practical involvement. In addition, Lima's "Espiral Construtivista" (Constructivist Spiral) (2016) highlights a sequential learning process. The link between Dewey and Freire highlights the importance of practical learning and social change. This education complements established approaches, strengthening Brazilian identity and promoting a critical mindset. Reflecting on its impact contributes to the development of individuals who are attentive to an increasingly globalized world marked by rapid environmental and social transformations.

Landscape Education becomes even more relevant as it allows students to understand the interactions between society and the environment in their own contexts. However, it is essential to question whether educational practices in landscape can effectively promote the social transformation proposed by Freire's conception. Furthermore, is mere observation and interpretation of the landscape enough to generate change, or do they require more engaged actions?

The proposal of critical constructivism aims to create reflective individuals who can analyze the reality around them and make decisions based on their perceptions. This approach seeks to initiate a process of social change and transformation and offers a deeper understanding of how individual interests, perceptions, and identities interact,

leading to a more dynamic and constantly evolving perspective of the surrounding reality. If Dewey advocates for an education based on constructivism, in principle, it should be critical, as it must allow the learner to emancipate from the limitations of pre-established or predetermined knowledge, guiding them to seek knowledge independently for their civic formation. Therefore, trying to combine this approach with an educational perspective of liberation that values a pedagogy of autonomy, which is critical of unilateral educational concepts, allows Dewey to align with Paulo Freire's philosophy, which offers a problematizing education as an element of pedagogical communication and seeks to encourage awareness and autonomy through dialogue.

Freire (1979) explores the idea of conscientization and emphasizes the importance of individuals actively working on their own realities, which aligns with current perspectives that link citizenship and global engagement. In this scope, conscientization has the potential to foster the active involvement of individuals and, consequently, develop a citizenship that transcends borders and becomes the most appropriate approach to discuss and implement civic education. In Freire's conception, education should be based on dialogue, through which relational opportunities are created (Durakoglu *et al.*, 2013).

Freire made significant contributions to education with innovative approaches, still relevant as alternatives to traditional methods (Mayo, 2011). His contemporary proposals, with an emphasis on questioning, align to some extent with constructivism (Durakoglu *et al.*, 2013; Mayo, 2011), although this theme is seldom explored in his texts. Gadotti (1999) asserts that Freire was one of the creators of "critical constructivism," highlighting the alignment of his educational concepts with the constructivist approach, especially in relation to the critical thinking that develops systematic, logical, rational understanding and creative problem-solving, utilizing multiple intelligences and rooted in active learning. Gadotti (1999) emphasizes Freire's pleasure in learning and transmitting this joy. Critical education seeks to liberate and contribute to the struggle for rights and the construction of a just and democratic society.

To align Freire's critical thinking with constructivism, it is necessary to consider Dewey, an archetype of modern critical thought and a proponent of "reflective thinking" and

problem-solving (Gündoğdu, 2009; Mayo, 2011). Freire offers an education aimed at liberating individuals from oppression and social inequalities, with a problematizing approach to achieving social goals (Durakoglu *et al.*, 2013). He values individual and collective experiences in a welcoming environment, stimulating reflection on the constructions of the idea of the world and on oneself, through curiosity, imagination, and creativity:

*[...] The epistemological perspective of constructivism is necessarily a dialectical perspective, eminently dialectical, and not mechanical or mechanistic. There are, for example, several thinkers and scientists who did not use this name but who are constructivists, and whose contributions are essential to the understanding of what has come to be called constructivism. (Freire, verbal information<sup>2</sup>).*

This is not a critical opinion of constructivism, but rather a contribution that helps to structure it and recognize it as a valuable tool in education. Perhaps it is far from being a replacement for other pedagogies, and distant from being vilified by authoritarian and antidemocratic criticisms, but valid as a form of social construction and a utopia of freedom, as he later expressed in the same speech:

*[...] I believe I have also made a significant contribution to the structuring of what is now called constructivism in the country. Now, pay attention, one of the core aspects of this constructivist perspective is the taste for freedom. It is not just the taste, but the taste followed by the desire to be free. I could say it in other words: in constructivism, we have the process of knowing, knowledge, as a social production [...] a creative adventure of freedom that necessarily collides with or is 'shocked' by the authoritarian traditions that our upbringing has ingrained in us." (Freire, verbal information<sup>2</sup>).*

Finally, Freire concludes by stating that the greatest concern in the constructivist context is the presence of authoritarianism, as it contradicts the fundamental principles of this pedagogical approach, which aims to promote active participation and the autonomy of the individual.

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<sup>2</sup>This text is an edited transcription of Paulo Freire's speech at the Cooperative School in the 1990s, highlighting his approach to constructivism. Original speech: <https://youtu.be/1K4WIrJirzU>, full lecture: <https://www.youtube.com/watch?v=I1U8IGOqopw&sns=fb> and <https://www.youtube.com/watch?v=V0n4bmau7A4>. Transcription: Juliana Vieira, editing: Rosaura Soligo.

Therefore, Freire's works highlight an education founded on practical experience that fosters critical thinking and self-awareness, which can be understood as "[...] a process through which the educator invites the students to recognize and reveal reality critically" (Freire, 1985, p. 125). According to Gadotti (1999, p. 6), in Freire's conception, this can be expressed as: "[...] one learns when one wants to learn, and only what is meaningful is learned, say the constructivists [...]" . These approaches, by promoting active participation and genuine expression in the educational environment, reflect the views of both Dewey and Freire. Freire emphasizes the importance of recognizing prior experiences, fostering autonomy, and critical reflection to transform society (Freire, 2001, p. 67), in line with Dewey's proposals.

Although the landscape may play a relevant role in the educational process and has been studied in Dewey's epistemological and educational philosophy, there are no references to Freire in specific studies about landscape education. However, there is a predisposition to discuss issues currently addressed in Eco-Social Education (Bowers, 2006; Misiaszek, 2017, 2011). Paulo Freire's commitment was to value and incorporate local knowledge and the interaction between humans and their environment. It is important to note that his ideas are increasingly being recognized in critical studies of Eco-Social Education, as they also promote an emancipatory and transformative form of education (Misiaszek; Torres, 2019).

Thus, Freire acknowledged the environment as an important space for learning, and understanding his work in a more comprehensive manner can help develop an educational approach contextualized in Eco-Pedagogy, encompassing various disciplinary perspectives (Gadotti, 2000, Misiaszek, 2011). Freire (2001) emphasizes a fundamental understanding of the human based on the study of their culture to highlight their creative output on nature. This enables the distinction between worlds: that of nature and that of culture itself, empowering the individual to take an active role in society and connect with the surrounding reality (Menezes; Santiago, 2014).

In suggesting a critical and transformative constructivism in Landscape Education, it is worth noting that Gadotti (1999) explains that "Freirean constructivism," in its third

phase, introduces problematization, which involves transformative actions. At this point, the author comments that knowledge alone is not liberating; it must be associated with a political commitment to defend the oppressed individuals. Therefore, it represents an essential tool for shaping and transforming the individual and should not be limited to a few. He further adds that Paulo Freire had an intrinsic affection for knowledge and demonstrated a passion for learning, emphasizing that knowledge is acquired to understand, investigate the truth, interpret, and actively transform the world, that is, he argued that knowledge should serve as a tool to intervene in the world (Gadotti, 1999).

The works of Dewey and Freire converge in Landscape Education, merging Dewey's constructivism with Freire's critical thought. Education transcends mere learning, revealing individual creative potential. Freire values education in connection with the environment, recognizing the importance of affective and sensory experiences. Both share courage and insight in their social contexts. Freire needed extraordinary courage and adequate insight, which he possessed, to spread liberating education, while Dewey needed adequate courage and extraordinary insight, which he also had, to disseminate his progressive education (Betz, 1992; Joldersma, 2001).

Therefore, Freire and Dewey shared a problematizing education, based on nature as a space for learning, which can be a reconciling and contributing link to Landscape Education, aligning common points of a critical and transformative constructivist education. Moreover, it can be said that [...] in Freire resonates the Deweyan theme of learning by doing[...] (Joldersma 2001, p. 143), but his ideas are not merely echoes of Dewey, for in Freire, education must be connected to structural changes in an oppressed society (Gadotti, 1994).

The contributions of these two educators have the potential to enrich Landscape Education, promoting a critical, participatory, and contextualized approach, which can be synthesized in the following Table 2.

**Table 2 – Key Principles of Dewey and Freire and Common Points as an Independent Voice in the Proposal of Critical, Transformative, and Participatory Constructive Landscape Education.**

Aspect	John Dewey	Paulo Freire	Common
<b>Educational Philosophy</b>	Educational Pragmatism, emphasizing experience.	Critical pedagogy, focused on awareness and dialogue.	Emphasis on experience as an educational foundation.
<b>Active Participation</b>	Advocates learning through action and experience.	Promotes active participation in the process.	Valuing active participation in learning.
<b>Social Context</b>	Considers the environment as an integral part of learning.	Seeks social awareness and transformation.	Recognition of the importance of the social context.
<b>Dialogue</b>	Values communication and dialogue as tools.	Highlights the importance of dialogue and communication.	Emphasis on communication and dialogue as educational resources.
<b>Contextualization</b>	Proposes the adaptation of teaching to context and experience.	Emphasizes the contextualization of teaching in the local reality.	Advocacy for the contextualization of teaching in educational practice.
<b>Experientialism</b>	Emphasizes the importance of experience in learning.	Values experience as the basis for learning.	Recognition of the relevance of experience in education.
<b>Social Transformation</b>	Recognizes education as a means of social transformation.	Seeks social transformation through education.	Commitment to education as an agent of social transformation.

Source: Prepared by the authors.

Nature, for Dewey, was found in the landscape, which could be used as an educational resource to aid in the development of sensory, emotional, and cognitive skills. This is presented in his work *Democracy and Education* (1916), where he argues that the landscape is a source of inspiration and beauty and can be used to teach skills such as observation, description, analysis, and synthesis.

Thus, Dewey's connection to the study of landscape for education is quite strong, as he believed in experiential learning, driven by curiosity and critical thinking, individual experiences with nature, and the democracy and participation of students, with the

landscape being a rich source of learning. Freire, although not writing specifically about the landscape, provides strong arguments for a critical Eco-Social Education in his works by presenting key pedagogical, philosophical, and political concepts essential for the education of those who appreciate the world and have consideration for themselves (Ceccon, 2014):

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It is urgent that we take on the duty of fighting for the most fundamental ethical principles, such as respect for human life, the life of other animals, the life of birds, the life of rivers and forests. I do not believe in love between men and women if we are not able to love the world. Ecology gains fundamental importance at the end of this century. It must be present in any educational practice of a radical, critical, or liberating nature. (Freire, 2000, p. 67)

Again, in this sense, convergent arguments from Dewey and Freire reveal a pragmatic opportunity for a transformative social education (Muraro, 2022; Muraro, 2012), helping in the development of students and strengthening their connection with their natural and cultural surroundings. Furthermore, seeking an approximation of ideas can be useful for an identity-building approach to educating in landscape that awakens meaning, critical thinking, and authentic belonging in relation to the Brazilian landscape. It can contribute to contemporary pedagogical methods, which does not mean replacing them, but perhaps seeking a blend of pedagogical aspects, leveraging the best elements of each to contribute to the construction of a Brazilian identity in Eco Social Education.

Table 3 offers a practical teaching approach that combines the principles of constructivism and transformation through education, and infers some connections with the educational theories of John Dewey and Paulo Freire that should be incorporated into the landscape based on educational practices.

**Table 3 – Activity Strategies and Integration through Educational Practices that Dialogue with Dewey and Freire in Exploring Education in Landscape**

Strategies and Activities	Actions	Relation to Dewey	Relation to Freire
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<b>Field Experiences</b>	Visits to natural and cultural environments for landscape exploration. Initiation of discussions based on observations.	Emphasis on learning through experience.	Valuation of experience as the basis of learning.
<b>Scientific Investigation</b>	Encouragement of independent research on the landscape. Active knowledge construction through investigation.	Support for investigation and active knowledge construction.	Encouragement of collective knowledge construction.
<b>Dialogue and Debate</b>	Implementation of dialogue as a method of collective knowledge building. Debates for exchanging perspectives and ideas.	Valuation of dialogue as knowledge construction.	Focus on dialogue as a method of collective knowledge building.
<b>Group Work and Collaboration</b>	Collaborative activities that encourage idea exchange and joint knowledge construction.	Focus on collaboration and joint knowledge building.	Encouragement of collective education as a method of knowledge construction.
<b>Synthesis and Application</b>	Practical application of acquired knowledge in landscape-based projects.	Emphasis on the practical application of knowledge.	Focus on practice and critical assessment.
<b>Connection with the Local Reality</b>	Connecting content with the landscape reality. Contextualized and meaningful approach for students.	Proposal to relate teaching to the local reality.	Valuation of contextualization and local significance.
<b>Assessment Methods</b>	Portfolios and reports (critical reflection), active participation (individual/collective contribution), presentations/debates (communication/argumentation), landscape-based projects, and artistic expression (landscape representation).	Encouragement of critical reflection and active participation in assessment.	Valuation of active participation, communication, and applied practice in assessment.
<b>Ethical and Social Considerations</b>	The principles include ethics and social responsibility (respect for diversity and inclusion), sustainability (environmental responsibility and preservation), and research ethics (ethical approach to sensitive landscape issues and ethical practices in research and intervention).	Focus on ethics and social awareness.	Emphasis on ethics, inclusivity, and social awareness.

Source: Prepared by the authors.

By integrating their theoretical principles into the educational framework, teachers can have the opportunity to create a learning environment where students actively engage

in understanding landscape concepts, enhancing their critical thinking skills, and taking an active role in teaching and learning. Additionally, this pedagogical strategy can also embrace the principles of Paulo Freire's critical pedagogy, which involves fostering a student environment engaged in debate, expression of ideas, and critical analysis of perspectives on the landscape, its preservation, and sustainability.

The proposal focuses on active educational experience and the students' critical awareness of the landscape, considering its natural aspects as well as its social, cultural, and historical dimensions. Furthermore, active strategies are presented to align with the principles of constructivism and critical thinking, aiming to promote an engaging learning environment where students engage in dialogue, collaborate with peers, and apply their knowledge practically. The assessments are designed to measure the students' critical understanding and evaluate the effectiveness of learning implications. Additionally, ethical and social considerations are seamlessly integrated into the curriculum to foster a responsible and inclusive approach to Landscape Education.

## 4 Final Considerations

Landscape Education, grounded in critical and transformative constructivism, emerges as a promising proposal, yet it requires further exploration of its practical and reflective implications, particularly in the context of Brazilian identity-based education. While it highlights the active participation of students, promoting perception, observation, and interpretation as pathways to knowledge construction, the approach still seems to lack more concrete practical articulation to solidify its effective educational application across different educational levels. The idea of forming reflective individuals critically engaged with their environment is powerful, but its realization depends on more clearly defined strategies and the preparation of educators capable of valuing the teaching of the cultural, historical, and environmental specifics that shape Brazilian identity.

Inspired by the ideas of John Dewey and Paulo Freire, the proposal combines practical learning with an emancipatory perspective, emphasizing dialogue, awareness,

and social change as pillars of meaningful education. However, the relationship between these thinkers and educational practice lacks examples that more clearly demonstrate the direct connection between theory and practice. The concept of the “Espiral Construtivista” (Constructivist Spiral), as introduced by Lima (2016), is mentioned as a central learning structure, but there is a lack of concrete evidence validating its effectiveness in various educational contexts, particularly those requiring a Brazilian identity-focused approach capable of exploring the relationships between students and the richness of the country’s cultural and natural landscapes.

Landscape Education should be understood as an approach that not only connects students to their territories but also promotes the recognition of the multiple identities that make up Brazilian society. The appreciation of cultural and natural heritage, as well as students’ connection to their local realities, is emphasized as a central point. However, the integration of global demands for sustainability and resilience could be explored more thoroughly, highlighting how this education can contribute to active environmental citizenship, aligned with Brazil’s historical and cultural specifics.

Although the intention is not to conclude the debate on Landscape Education, its proposal to integrate elements of constructivist and transformative pedagogies can be more robust and aligned with contemporary educational practices. The formation of critical and engaged citizens depends on an approach that goes beyond theoretical reflection, requiring practical examples and planning that more directly connect the presented concepts to the demands and challenges of the Brazilian educational environment. By adopting an identity-based character, Landscape Education has the potential to strengthen the sense of belonging and collective responsibility, which are essential for building a fairer and more sustainable society.

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**Responsible Publisher:** Genifer Andrade

**Ad hoc Specialist:** Marcilio de Souza Vieira, Carla Teresa da Costa Pedrosa and Aline Andréia Nicolli.

Received on November 1, 2024.

Accepted on January 7, 2025.

Published on March 6, 2025.

### How to cite this article (ABNT):

PEREIRA-SILVA, Erico Fernando Lopes; CRESPO, José Manuel. O construtivismo crítico e transformador para uma Educação em Paisagem. **Rev. Pemo**, Fortaleza, v. 7, e14389, 2025. Disponível em: <https://revistas.uece.br/index.php/revpemo/article/view/14389>

