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DIALOGUES BETWEEN WALDORF PEDAGOGY AND EMBODIED COGNITION: ENATIVE APPROACH, SELF-KNOWLEDGE AND EDUCATIONAL PRACTICE

DIÁLOGOS ENTRE A PEDAGOGIA WALDORF E A COGNIÇÃO INCORPORADA: ABORADAGEM ENATIVA, AUTOCONHECIMENTO E PRÁXIS EDUCACIONAL

DIÁLOGOS ENTRE LA PEDAGOGÍA WALDORF Y LA COGNICIÓN ENCARNADA: ENFOQUE NATIVO, AUTOCONOCIMIENTO Y PRÁCTICA EDUCATIVA

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ABSTRACT

This article explores the theoretical and practical convergences between Waldorf Education (WP), developed by Rudolf Steiner, and contemporary Embodied Cognition (EC) approaches, with a special emphasis on the enactive approach. In an educational landscape seeking responses to the growing fragmentation of knowledge and socio-emotional challenges, this paper argues that WP, formulated in the early 20th century, not only anticipates fundamental EC principles—such as the centrality of embodied experience and cognition as situated action—but also proves to be a relevant praxis, validated by recent empirical research that correlates its artistic practices with competencies such as empathy (Martzog; Kuttner; Pollak, 2016) and its imaginative methods with the development of 21st-century skills (Tsortanidou; Daradoumis; Barberá, 2020). Through a theoretical review and analysis, this article examines how Steiner's concepts of self-knowledge, human development, and pedagogical practice interact with Varela's notions of enaction, structural coupling, and ethical know-how. The analysis reveals that both perspectives, although based on distinct theoretical foundations, converge notably in their contemplative epistemologies, which value the investigation of first-person experience as a path to knowledge, resulting in practical implications for understanding knowledge as an active process of co-creation between the subject and the world. It is concluded that the enactive approach offers a contemporary scientific framework that validates and enriches the understanding of Waldorf practices, while Steiner's pedagogy offers a consolidated model of integral education that exemplifies the application of principles consonant with embodied cognition in practice.

Keywords: Embodied Cognition. Enactive Approach. Waldorf Pedagogy. Self-Knowledge. Integral Education.

RESUMO

Este artigo explora as convergências teóricas e práticas entre a Pedagogia Waldorf (PW), desenvolvida por Rudolf Steiner, e as abordagens contemporâneas da Cognição Incorporada (CI), com especial ênfase na abordagem enativa. Em um cenário educacional que busca respostas para a crescente fragmentação do conhecimento e para os desafios socioemocionais, este trabalho argumenta que a PW, formulada no início do século XX, não

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só antecipa princípios fundamentais da CI — como a centralidade da experiência corporificada e a cognição como ação situada —, mas também se mostra uma práxis relevante, validada por pesquisas empíricas recentes que correlacionam suas práticas artísticas a competências como a empatia (Martzog; Kuttner; Pollak, 2016) e seus métodos imaginativos ao desenvolvimento de habilidades para o século XXI (Tsortanidou; Daradoumis; Barberá, 2020). Por meio de uma revisão e análise teórica, o artigo examina como os conceitos de autoconhecimento, desenvolvimento humano e prática pedagógica em Steiner dialogam com as noções de enação, acoplamento estrutural e saber-fazer ético em Varela. A análise revela que ambas as perspectivas, embora partindo de fundamentos teóricos distintos, convergem notavelmente em suas epistemologias contemplativas, que valorizam a investigação da experiência em primeira pessoa como caminho para o conhecimento, resultando em implicações práticas para uma compreensão do conhecimento como um processo ativo de cocriação entre o sujeito e o mundo. Conclui-se que a abordagem enativa oferece um arcabouço científico contemporâneo que valida e enriquece a compreensão das práticas Waldorf, enquanto a pedagogia de Steiner oferece um modelo de educação integral consolidado que exemplifica a aplicação de princípios consonantes com a cognição incorporada na prática.

Palavras-chave: Cognição Incorporada. Abordagem Enativa. Pedagogia Waldorf. Autoconhecimento. Educação Integral.

RESUMEN

Este artículo explora las convergencias teóricas y prácticas entre la Educación Waldorf (WP), desarrollada por Rudolf Steiner, y los enfoques contemporáneos de Cognición Encarnada (CE), con especial énfasis en el enfoque enactivo. En un panorama educativo que busca respuestas a la creciente fragmentación del conocimiento y a los desafíos socioemocionales, este artículo argumenta que la WP, formulada a principios del siglo XX, no solo anticipa principios fundamentales de la CE —como la centralidad de la experiencia encarnada y la cognición como acción situada—, sino que también demuestra ser una praxis relevante, validada por investigaciones empíricas recientes que correlacionan sus prácticas artísticas con competencias como la empatía (Martzog; Kuttner; Pollak, 2016) y sus métodos imaginativos con el desarrollo de habilidades del siglo XXI (Tsortanidou; Daradoumis; Barberá, 2020). A través de una revisión y análisis teóricos, este artículo examina cómo los conceptos de Steiner sobre autoconocimiento, desarrollo humano y práctica pedagógica interactúan con las nociones de Varela sobre enacción, acoplamiento estructural y saber hacer ético. El análisis revela que ambas perspectivas, si bien se basan en fundamentos teóricos distintos, convergen notablemente en sus epistemologías contemplativas, que valoran la investigación de la experiencia en primera persona como vía de acceso al conocimiento, lo que resulta en implicaciones prácticas para la comprensión del conocimiento como un proceso activo de cocreación entre el sujeto y el mundo. Se concluye que el enfoque enactivo ofrece un marco científico contemporáneo que valida y enriquece la comprensión de las prácticas Waldorf, mientras que la pedagogía de Steiner ofrece un modelo consolidado de educación integral que ejemplifica la aplicación práctica de principios acordes con la cognición encarnada.

Palabras clave: Cognición Encarnada. Enfoque Enactivo. Pedagogía Waldorf. Autoconocimiento. Educación Integral.

1 INTRODUCTION

The contemporary educational scenario faces complex challenges, marked by increasing levels of stress and illness among teachers and students, a reality documented in several contexts, including the Brazilian one (Diehl; Marin, 2016; Silva; Bolsoni-Silva; Loureiro, 2018). Factors such as the precariousness of working conditions, the overload of demands and the devaluation of the teaching profession contribute to this situation, generating the urgent need to rethink not only individual actions, but the very structure of the school and its pedagogical processes. In response, there has been a growing interest in approaches that prioritize social-emotional development. This search, however, transcends the mere application of programs for students; it points to the need for an integral education that encompasses the entire school community — teachers, students and families (Barcellos; Moll, 2023) — and, fundamentally, to the challenge of developing approaches to teaching one's own academic content that start from an integral understanding of the human being (Maurente; Maraschin; Baum, 2019).

However, the insertion of practices aimed at well-being in isolation, often as an additional component to the curriculum, risks not addressing the root of the problem, revealing a persistent fragmentation in the understanding of the relationships between cognition, affectivity and corporeality (Ergas; Hadar, 2019). This fragmentation reflects an educational paradigm that has historically tended to separate reason and emotion, mind and body. Overcoming these dichotomies requires a deeper understanding of how consciousness develops, a theme that, although central to education, is often addressed in a limited way. As Stoltz, Weger, and da Veiga (2024) point out, much of the educational research on consciousness focuses on its sociopolitical aspects, such as Freire's critical consciousness, devoting less attention to the study of the process of development of consciousness itself.

In parallel, the cognitive sciences have undergone a paradigmatic transformation. The traditional view, which conceived of the mind as a processor of abstract information, has been challenged by Embodied Cognition (IC) approaches, which recognize the fundamental interdependence between cognitive processes and sensorimotor experiences (Macrine; Fugate, 2022; Shapiro; Stolz, 2019). Within this field, Francisco Varela's enactive approach radicalizes this perspective, proposing that cognition is not a representation of an external world, but an "emerging" of a world of meaning through embodied action (enação[3]).

[3] The term 'enaction' is the translation of the English *enaction*. As an alternative, in some works in Portuguese, the term 'acting' is also used.

Knowledge, in this view, is a "know-how" that emerges from the dynamic coupling between the organism and its environment (Varela; Thompson; Rosch, 2017). This perspective gains special urgency in teacher training, where it is necessary to overcome the model of representation and "bet on the enactive character of the production of knowledge" (Maurente; Maraschin; Baum, 2019).

In this context, Waldorf Pedagogy (PW), developed by Rudolf Steiner more than a century ago, emerges as an object of study of remarkable relevance. Based on a humanistic and holistic worldview, PW proposes a pedagogical practice that, since its origin, has been based on the inseparable integration between thinking, feeling and wanting (acting), intuitively anticipating many of the precepts of IC (Bach Jr.; Stoltz; Veiga, 2015; Stoltz; Weger; da Veiga, 2024). The importance of revisiting this pedagogy today is reinforced by contemporary empirical evidence. Research indicates that strong immersion in the arts, central to Waldorf teacher training, is correlated with higher socio-emotional skills, such as empathy (Martzog; Kuttner; Pollak, 2016). In addition, studies show that his methods, centered on the imagination, are effective in developing essential skills for the twenty-first century, such as the "New Media Literacies", even in low-tech environments (Tsortanidou; Daradoumis; Barberá, 2020). Thus, PW seems to offer a practical and consolidated model of how the principles of embodied cognition can materialize in a coherent and relevant educational praxis. However, despite the evident resonances, the academic literature still lacks an in-depth dialogue between these two rich traditions of thought, especially with regard to their shared contemplative epistemologies.

Considering this gap, this work is justified by the need to build theoretical bridges that can illuminate and enrich both the understanding of Waldorf Pedagogy and the field of education from an embodied perspective. By placing Steinerian practice in dialogue with contemporary theories of IC, it seeks to overcome the fragmentation between theory and practice (Stoltz et al., 2024), offering subsidies for the construction of more humane, sustainable school practices aligned with an integral understanding of human development. The aim of this literature review is therefore to explore the theoretical and practical convergences between Waldorf Pedagogy (PW), developed by Rudolf Steiner, and contemporary approaches to Embodied Cognition (IC), with special emphasis on the enactive approach.

2 METHODOLOGY

This work constitutes a review of narrative literature, which is presented as a theoretical excerpt from the doctoral thesis of the first author. The selection of sources was based on a broader literature review, carried out in the thesis, which included searches in databases (Scielo, Web of Science, Capes Periódicos, ERIC and Scopus) for empirical and theoretical articles on the central concepts of the study. From this survey, the primary works of Rudolf Steiner and Francisco Varela that proved to be most pertinent to the proposed discussion were identified. The analysis consisted of a theoretical-comparative study of this body of primary and secondary sources, seeking to identify the convergences between the two fields and discuss their implications for education.

3 RESULTS

3.1 EMBODIED COGNITION, SELF-KNOWLEDGE AND EDUCATION IN THE ENACTIVE PERSPECTIVE

3.1.1 Embodied cognition and education

Embodied cognition is an umbrella term that encompasses a variety of approaches that argue that the body plays a crucial role in cognition, in contrast to the traditional view of cognition as a purely mental, brain-centered process. The understandings of cognitive processes with a representational basis, hegemonic between the 1960s and 1970s, understood the mind as analogous to the functioning of a computer, operating by the manipulation of symbols that represent a pre-existing and objective world (Maurente; Maraschin; Baum, 2019).

Challenging this view, Embodied Cognition (IC) proposes that cognition is a complex and dynamic interaction between the brain, the body, and the world around us. Rather than seeing the mind as a processor of abstract information, CI argues that our cognition is shaped by sensory and motor experiences (Macrine; Fugate, 2022). Varela, Thompson, and Rosch (2017), in "The Embodied Mind", argue that cognition is not the representation of a pre-existing world, but the "embodied action" that creates meaning through interaction with the environment. Perception, for example, is not a passive reception of information, but an active process of engagement with the world.

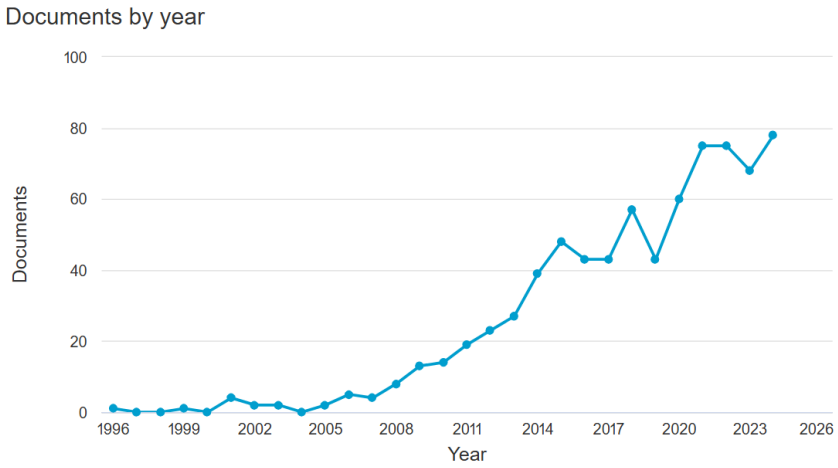
Some theorists, such as Gallagher (2023), advocate for "extended cognition," suggesting that tools such as notebooks or smartphones can become an integral part of our cognitive processes. The field of CI is vast, with approaches ranging from the most

conservative to the most radical and non-representationalist versions. In this work, the focus falls on the enactive approach, which understands cognition as being not only shaped by the body, but acted upon by it through action (Gallagher, 2023; Varela; Thompson; Rosch, 2017). IC has significant implications for several areas, including education, paving the way for new ways of understanding the complex interplay between body, mind, and world.

The perspective of IC in education has roots in pioneers such as Piaget, who recognized the importance of sensorimotor experiences, and Vygotsky, who emphasized the role of culture and social interaction. Educators such as Fröbel, Montessori, and Dewey have also advocated for the relevance of bodily experience and activity in learning (Flood, 2024). Today, CI offers a new lens for understanding learning, recognizing the body and experience as fundamental elements. Studies reveal that comprehension, memory, and reasoning depend on the dynamic interaction between body, mind, and environment (Macrine; Fugate, 2022; Shapiro; Stolz, 2018). Being an emerging field of research that grew significantly from mid-2008 and accelerated from 2014 onwards, as shown in Figure 1:

Figure 1

Publications Indexed in Scopus on the Theme of Embodied Cognition in Education



Source: The authors, 2025, using Scopus. Search results in Scopus with the following *string*: TITLE-ABS-KEY ("*embodied cognition*" AND (*education* OR *learning* OR *teaching* OR *school*)) AND (*LIMIT-TO* (*DOCTYPE, "ar"*)).

Learning is optimized when students actively interact with the content through sensorimotor experiences, to the detriment of passive learning (Gavillon; Kroeff, 2020). The implementation of IC in education, however, faces challenges, such as the need to change traditional conceptions of teaching and to develop new research methods. Macrine and Fugate (2021) propose a translational research model to connect IC research to practice by

developing assessment resources, curricula, and taxonomies. Teaching proposals based on IC are already implemented through project-based learning, the use of immersive technologies and the emphasis on the practical application of concepts, encouraging activities that involve the senses and movement.

To organize this field and translate theory into practice, researchers have proposed different frameworks. Flood (2024), for example, describes how IC shapes education in multiple ways: from the way our abstract concepts are anchored in motor and perceptual schemas (the conceptual metaphor theory) to the idea that the body actively participates in cognition, as in embodied simulation, where imagining an action activates the same brain areas to perform it. This view expands beyond the individual, with the notions of extended and distributed cognition, which recognize how our thinking relies on external tools and collaboration with others. In practice, this culminates in what Flood (2024) calls "responsive embedded teaching", an approach in which the teacher uses students' bodily manifestations as guides for learning, valuing the discovery that emerges from the body.

In the same vein, Skulmowski and Rey (2018) developed a taxonomy focused on bodily engagement and its integration with learning tasks. They reinforce the importance of action — such as gesturing during an explanation or physically acting out a story — as a potent catalyst for understanding, an idea supported by studies showing better learning outcomes when the body is actively engaged. Tools such as this taxonomy are crucial in guiding educators and researchers in the practical application of the principles of embodied cognition.

In summary, Embodied Cognition represents a fundamental paradigm shift, shifting the focus of cognition from a purely cerebral and representational process to a dynamic and integrated activity that involves the body, mind, and environment. While its roots in education can be traced back to pioneers such as Dewey and Montessori, CI today offers a robust scientific framework for understanding how learning is optimized through sensorimotor experience and action. The various approaches and taxonomies developed, such as those of Flood (2024) and Skulmowski and Rey (2018), demonstrate a growing effort to translate the theoretical principles of IC into concrete pedagogical practices, which value bodily engagement and the active interaction of the student with knowledge. This vast field, therefore, lays the foundations for deepening the discussion on its most radical strands, such as the enactive approach, which will be detailed below.

3.1.2 Embodied cognition and enactive approach

The enactive approach can be understood as a specific and radical form of IC, with emphasis on the active and generative nature of cognition. Proposed by Varela, Thompson and Rosch (2017), it argues that cognition is not only shaped by the body, but is exercised by it through action. Perception is a form of oriented action, configured by our possibilities of action and intentions (Gavillon; Kroeff, 2020). The central metaphor is "tracing a path as we walk": understanding is not pre-established, but constructed through bodily processes (Gallagher; Lindgren, 2015). Recent research in mathematics education, for example, has given this idea a concrete empirical basis through the concept of "anchors of attention" (Abrahamson et al., 2016). An anchor of attention is a perceptual, often imaginary, structure that a learner creates spontaneously to be able to organize a complex motor action. For example, when trying to coordinate their hands to move objects in a specific ratio, a student can begin to "see" a line or shape that connects these objects, using this imaginary shape as a "steering wheel" to guide their action. The emergence of these anchors, captured by technologies such as eye-tracking, demonstrates how a new cognitive structure emerges directly from a motor challenge, before the learner can even verbalize a mathematical rule.

Enactivism is characterized by several propositions, such as the idea that cognition emerges from processes distributed between brain-body-environment; that the world is structured by cognition and action; and that cognition acquires meaning in the context of action, not through internal representations. It opposes the methodological individualism of classical cognitive science, emphasizing the extended, socially situated nature of cognitive systems. A central concept is autonomy, the ability of the organism to self-organize and construct meaning from its interactions. The word "enaction" emphasizes that cognition is an active process of "bringing about" a world through interaction (Baum; Kroeff, 2019), proposing a continuity between life and mind.

Francisco Varela's intellectual trajectory is inseparable from his biography and the remarkable sociopolitical events he experienced. His experience in Chile, especially during the Allende government and the subsequent Pinochet dictatorship, profoundly impacted his worldview. Varela experienced political polarization, the exacerbation of the sense of territoriality, and a growing experience of chaos that culminated in the violence of the civil war. This traumatic experience led him to a deep reflection, convincing him that epistemology is not an abstract theme, but a force that "creates the kind of world we live in and the kind of human values we have" (Varela, 1979, p. 15). For him, the crisis was caused by a flawed

epistemology, based on rigid perspectives and incapable of dialogue. This realization impelled him to seek, in the contemplative practices of Buddhism, a way to understand the mind and find a way to detach himself from personal perspectives in order to achieve a broader understanding. He concluded that it was necessary to develop the ability to "incorporate into the creation of our worldviews the understanding that it is only a perspective... and that must contain in itself a way to undo itself" (Varela, 1979, p. 19). This search for an epistemology of personal and social transformation became the engine of his work, inextricably linking his scientific research to his political action and his understanding of the world.

A pillar of the enactive approach is the refinement of the first-person perspective, crucial for self-knowledge and for the cultivation of ethical "know-how". For Varela (1999), ethical expertise does not reside in abstract rules, but in a practical skill, cultivated by experience. This ability is linked to the recognition of the virtual nature of the "self", an understanding that can be enhanced by practices such as phenomenological reduction and mindfulness, analogous to contemplative traditions such as Buddhism (Depraz; Varela; Vermersch, 2003). Within this framework, self-knowledge is not mere factual knowledge about oneself, but an embodied practice that allows us to actively shape our relationship with the world. It serves as a tool to deconstruct the illusion of a pre-existing world and a fixed "I," paving the way for a more fluid and interconnected understanding of reality. This process, in turn, forms the basis for an ethic based on compassion and responsibility, as we recognize our interconnectedness with all beings (Varela, 1999).

3.2 FROM THEORY TO SCHOOL PEDAGOGICAL PRACTICE: COGNITION, SELF-KNOWLEDGE AND STEINERIAN EDUCATION

Rudolf Steiner (1861–1925), an Austrian philosopher and educator, sought from a young age to understand the relationship between science and the spiritual dimension of life. His trajectory was marked by a curiosity that encompassed both the natural world and human creations, an interest aroused in part by living with his father's work at a train station, which exposed him to the technology of the time (Stehlik, 2019). With a broad background in philosophy, physics, chemistry, and mathematics, Steiner founded Anthroposophy, or Spiritual Science, an approach that proposes to transcend reductionist empirical knowledge to access spiritual knowledge through a superior way of thinking (Rawson, 2021).

A particularly formative experience in his life was to act as a tutor to a boy with specific educational needs, whose medical prognosis indicated an inability to learn. Steiner developed a personalized pedagogical approach, considering the rhythms of the organism, alternating physical, cognitive and imaginative activities. The success of his method, which allowed the boy to complete his studies and reach higher education, solidified principles that would become central to Waldorf Pedagogy, such as the importance of rhythm, imagination, and the intrinsic relationship between cognition and movement (Nielsen, 2004; Schieren, 2023).

The first Waldorf school, founded in 1919 in Stuttgart, was born out of a social initiative in a context of post-war reconstruction. Emil Molt, owner of the Waldorf-Astoria cigarette factory, wishing to offer a quality, inclusive and humanistic education to the children of his workers, invited Steiner to develop the pedagogical project. The school was designed to be autonomous and guided by an integral view of the human being, seeking to overcome the barriers of the elitist and segregating educational system in Germany at the time (Stehlik, 2019). Steiner's proposal responded to an urgent social need, offering an educational model that aimed not only to transmit knowledge, but to cultivate human beings capable of rebuilding a fragmented society based on values of liberty, equality, and fraternity.

3.2.1 Steiner's theory of knowledge and education

For Steiner, the human being is not a passive spectator of an external reality, but an active co-creator of the world-process. Cognition is not a mirror of reality, but a process of active participation in which subject and world change. Knowledge emerges from the synthesis between sensory perception and concept, elaborated by the activity of thinking (Rawson, 2018; Stoltz; Weger; da Veiga, 2024). Steiner (2022, p. 75) states that "thinking is not a passive spectator of events, but an active participant". The perceiving knowing organism is part of the perceived world, and it is in the human "I" that the cosmos has the potential to become self-conscious (Rawson, 2021).

This process of understanding the internal world and its relationship with practice, or self-knowledge, is a pillar for ethical action and the construction of freedom in Steiner. We can only act freely when we are clear about our motivations and the likely consequences of our actions (Rawson, 2021; Bach Jr., 2015). The construction of knowledge, therefore, goes beyond empirical observation, requiring a deep understanding of oneself, of one's own

cognition, and the development of new skills that involve the entire knowing system (Bach Jr.; Stoltz; Veiga, 2013).

3.2.2 Knowledge, self-knowledge, ethics and social responsibility in Rudolf Steiner

In his work "The Philosophy of Freedom" (2022), Steiner explores the relationship between self-knowledge, ethical development, and social transformation. Freedom, for him, is the ability to create possibilities to think and act autonomously. The way to do this is the development of intuitive thinking, which begins with the observation of one's own thinking. By observing thinking, we understand its autonomous nature and recognize ourselves as beings capable of generating our own concepts and ideas.

Self-knowledge in Steiner encompasses the integration of all aspects of individuality: perceptions, feelings, and actions. Intuitive thinking connects the individual to the sphere of ideas, which contains the universal principles. It is at this level of experience that moral ideas originate. Ethical action is born from "moral fantasy", the ability to translate an abstract moral idea into a concrete and situated action (Steiner, 2022). This leads to ethical individualism, where the individual, as a "free spirit", acts according to his own impulses and intuitions, becoming the source of morality and contributing to a social order that should foster individual development.

Self-knowledge in Waldorf Pedagogy is therefore an essential component of integral development. Although the path to self-knowledge itself occurs in adult life, education must create the basis for the child to maintain his health and be able to carry out such a process. This is due to respect for individuality, the encouragement of the discovery of talents, the curriculum aligned with the stages of development and the use of the arts as a form of expression. The teacher, as a model, must be in a constant process of self-education, cultivating his own self-awareness to create a safe and supportive learning environment (Nielsen, 2006; Van Schie; Vedder, 2023).

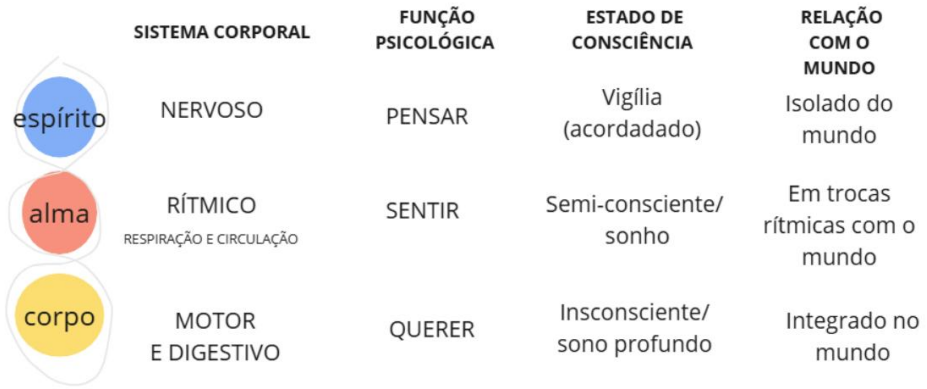
3.2.3 Steiner's theory of human development and learning and its application in education

Waldorf Pedagogy is based on an "educational anthropology" that describes the physical, soul, and spiritual dimensions in an integrated way. Steiner proposes models or frameworks to translate theoretical principles into a practical methodology. The psychosomatic model of the threefold describes the human being in body, soul and spirit,

related to the functions of consciousness: thinking, feeling and willing. These functions, in turn, correspond to bodily systems (nervous, rhythmic, motor-digestive) and to different states of consciousness (wakefulness, dreaming, deep sleep) (Lanz, 2003). Figure 2 presents, together, the aspects related to the three-limbed model proposed by Steiner:

Figure 2

Three-Sided Model: correspondences of bodily, psychological and spiritual functions



Source: Souza (2025), based on Rawson (2021, p. 40).

The figure presents a diagram that correlates the constitution of the human being - spirit, soul and body - with their respective functionalities and states of consciousness, establishing an analogy with the complexity and interdependence of an organism. Similarly, these same principles are applied to understand the "social organism" as an extension of the individual human being. This social organism is composed of three interconnected spheres, each with its own laws and functions, which are equivalent to the human trimembrance of thinking, feeling, and willing. The spiritual-cultural sphere, corresponding to thinking, manifests itself in areas such as art, science, education and religion. The juridical-political sphere, which is equivalent to feeling, organizes the norms and relations of social coexistence (laws, politics, governance). Finally, the economic sphere, analogous to willing, serves as a material basis, encompassing the production and distribution of goods and services (Rawson, 2018; 2021).

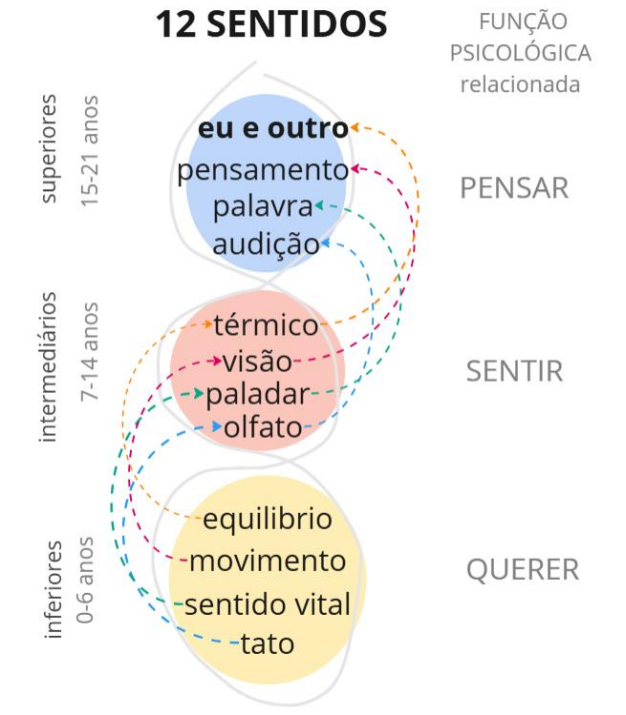
For a more detailed understanding, Steiner presented the four-member model, useful for understanding the child's development. This model describes four dimensions that interact and mature gradually in cycles of approximately seven years (seven-year periods): the physical body (material), the vital body (growth forces and habits), the sensitive body (emotions and feelings) and the Self (identity and self-knowledge) (Steiner, 1996).

The first seven years (0-7 years) is marked by the intense formation of the physical body, with learning occurring mainly through imitation. The second seven-year period (7-14 years) corresponds to the maturation of the sensitive body, with imagination and feeling being the main vehicles for learning. The third seven-year period (14-21 years) is the phase of maturation of the Self, with the development of abstract thinking and the capacity for judgment (Rawson, 2021).

Another relevant model is that of the twelve senses, which expands the sensory conception beyond the traditional five. It organizes the senses into three groups: inferior (touch, vital, movement, balance), related to the experience of one's own body (willing); intermediate (smell, taste, vision, thermal), focused on the quality of the external world (feeling); and higher (hearing, word, thought, other-self), related to the understanding of the other and the world (thinking) (Baldissin, 2014).

Figure 3

The twelve senses, psychological functions and development



Source: Souza (2025) based on Dahlin (2017), Baldissin (2014) and Green (2015).

These models are not dogmas, but tools that serve as a *framework* for a phenomenological observation of child development, allowing the teacher to apply the principles in a lively and appropriate way to each context.

3.2.4 Analysis of Waldorf Praxis: Connecting Theory and Action

The analysis of the path from anthroposophical theory to Waldorf practice reveals how Steiner's epistemological foundations materialize in a cohesive and integrative educational approach. The journey from Steiner's epistemology to the everyday life of a Waldorf classroom is not a linear application, but a dynamic translation. The principle that knowledge is an active co-creation between subject and world (3.2.1) is the basis, but it would remain abstract without the framework of human development (3.2.3). It is the understanding of the seven-year and twelve-senses that allows the teacher to present the world in such a way that the child can actively "co-create" knowledge in a way that is appropriate to his or her age. Moreover, this process is deeply ethical. The goal of cultivating "free spirits" through "ethical individualism" (3.2.2) is woven into the curriculum. The arts are not merely instrumental; they are the primary means for the child to express his inner world and connect with the universal, preparing the ground for the "moral fantasy" that Steiner describes. Thus, Waldorf practice is the synthesis of these dimensions: an education through the body and the senses, guided by a deep understanding of human development, with the ultimate goal of forming self-aware and ethically free individuals.

4 DISCUSSION

The proposed analysis reveals profound convergences between Waldorf Pedagogy and the enactive approach, which go beyond mere practical similarities. The central point of dialogue lies in their contemplative epistemologies: both Steiner and Varela propose that genuine knowledge about cognition, human development, and life itself emerge from a disciplined investigation of lived experience. This is not a passive introspection, but an active practice that seeks to overcome subject-object dualism, contrasting sharply with educational approaches that separate knowledge from doing and cognition from ethics.

In Varela's approach, this practice is explicitly linked to Buddhist contemplative traditions and formalized in the proposal of neurophenomenology (Depraz; Varela; Vermersch, 2003). The aim is to train attention to examine the structure of first-person experience, developing an ethical *know-how* that is not based on external rules, but on a keen and compassionate perception of the interconnectedness between oneself and the world (Varela, 1999). Ethics, here, is born from the very practice of knowing; Self-knowledge is not an end in itself, but the path to wiser and more compassionate action.

Similarly, Steiner's "Spiritual Science" is fundamentally a path of contemplative knowledge. The "intuitive thinking" that he proposes in "The Philosophy of Freedom" (2022) is a method of phenomenological observation of the act of thinking itself, seeking a clarity that becomes the source of free and moral action. This contemplative epistemology is the basis of all Waldorf Pedagogy. It is through an attentive and meditative observation of the child, together with theoretical study and reflection, that the Waldorf teacher understands the phases of development (the seven-year periods), the complexity of the twelve senses and the dynamics of the three-way movement. The curriculum is not a ready-made package, but an artistic creation that emerges from this contemplative understanding, seeking to respond to the needs of each stage of development. A practical example is the introduction of letters in the first year: they are not presented as abstract symbols, but emerge from archetypal stories and images (the 'S' of a serpent, the 'M' of a mountain). This pedagogical decision does not come from a manual, but from the contemplative understanding that the seven-year-old child lives in a world of images and feelings, and that the path to the abstract must be trodden through the concrete and the artistic (Rawson, 2021).

The teacher's process of self-knowledge is therefore the cornerstone of Waldorf ethics. As in Varela, the ethical action of the educator is not to follow a code of conduct, but to act from a deep understanding of oneself and the student. The culmination of this dialogue is the inseparable relationship between ethics and aesthetics in both approaches. For Varela (1999), ethical action is spontaneous and skillful, almost like that of a jazz master — it is an adequate and beautiful response to a present situation. For Steiner (2022), "moral fantasy" is the ability to shape a moral intuition into a concrete, living, and beautiful action. In both cases, contemplative practice (self-knowledge, observation of the other) refines perception and sensitivity. This refinement allows the action to be not only "correct", but also "beautiful" and "appropriate" to the context. A cycle is created that feeds back: contemplative practice cultivates ethical values, and the experience of these values deepens the contemplative capacity. Waldorf Pedagogy, with its emphasis on the arts, not only seeks to develop artistic skills, but to cultivate this ability to act in the world in an ethical and aesthetically harmonious way. Therefore, Waldorf praxis can be seen as the pedagogical manifestation of an ethical-aesthetic "know-how", rooted in a deep contemplative epistemology, in remarkable resonance with the foundations of the enactive approach.

5 CONCLUSION

This article proposed to analyze the Steinerian pedagogical practice in the light of the theories of embodied cognition, in order to explore its epistemological convergences. Throughout the analysis, it was demonstrated that this dialogue is not only possible, but revealing. The research responded to its objective by identifying the common pillar of contemplative epistemologies as the fundamental bridge between Steiner's Spiritual Science and Varela's enactive approach. It was evidenced that, in both perspectives, knowledge about human development and cognition is generated from an investigative practice of experience, which in turn underpins a praxis that is inseparable from ethical and aesthetic know-how. Thus, the work concludes that Waldorf Pedagogy is not only compatible with the principles of embodied cognition, but represents one of its oldest and most comprehensive practical applications.

In short, Waldorf Pedagogy emerges as an educational practice that, at its core, anticipated and applied many of the principles articulated today by Embodied Cognition. This dialogue, therefore, transcends the mere academic exercise; It represents a vital, two-way path for educational research. For Waldorf Pedagogy researchers and practitioners, the enactive framework offers a contemporary scientific language to articulate, investigate, and validate their established practices. On the other hand, for the researchers of Embodied Cognition, PW presents itself as a rich "laboratory" of more than a century of integral education in practice, challenging theory to confront a complex and successful pedagogical model.

This encounter between centuries-old praxis and avant-garde theory not only enriches the understanding of both, but also points to a promising future in educational research. Future investigations could benefit from empirical approaches that directly explore these connections. Comparative studies could look at the effects of specific Waldorf practices (such as eurythmy or shape drawing) on the development of sensorimotor and cognitive skills. Research using methodologies such as neurophenomenology could investigate, in Waldorf classrooms, how students' subjective experience correlates with neural activity during artistic and imaginative learning processes. Empirically deepening this theoretical bridge is, therefore, a fundamental step for us to cultivate an education that is, in fact and in law, truly incorporated.

REFERENCES

Abrahamson, D. (2021). Grasp actually: An evolutionist argument for enactivist mathematics education. Human Development, 64(1), 1–17. https://doi.org/10.1159/000515684

Abrahamson, D., Shulman, A., Shayan, S., & Wilkerson-Jerde, M. (2016). Eye-tracking Piaget: Capturing the emergence of attentional anchors in the coordination of proportional motor action. Human Development, 58(4–5), 218–244. https://doi.org/10.1159/000443153

Bach Jr., J. B. (2015). O pensar intuitivo como fundamento de uma educação para a liberdade. Educar em Revista, (56), 131–145. https://doi.org/10.1590/0104-4060.41406

Bach Jr., J. B., Stoltz, T., & Veiga, M. da. (2013). Autoeducação e liberdade na Pedagogia Waldorf. Educação: Teoria e Prática, 23(42), 161–175. https://doi.org/10.18675/1981-8106.vol23.n42.p161-175

Bach Jr., J., Stoltz, T., & Veiga, M. (2015). Pedagogia Waldorf: Educar para liberdade é desenvolver o pensar, o sentir e o querer. Interfaces da Educação, 5(15), 222–243. https://doi.org/10.17564/2316-3828.2015v5n15p222-243

Baldissin, M. (2014). Percepções humanas: Antroposofia e neurociências. Antroposófica.

Barcellos, R. G. D., & Moll, J. (2023). Educação integral e democracia: Contextos, referências e conceitos em um campo em disputas. Revista da FAEEBA: Educação e Contemporaneidade, 32(70), 17–31. https://doi.org/10.21879/faeeba2358-0194.2023.v32.n70.p17-31

Baum, C., & Kroeff, R. F. S. (2019). Enação: Conceitos introdutórios e contribuições contemporâneas. In V. Maurente, C. Maraschin, & C. Baum (Eds.), Enação: Percursos de pesquisa (pp. 1–20). Edições do Bosque.

Depraz, N., Varela, F. J., & Vermersch, P. (2003). On becoming aware: A pragmatics of experiencing. John Benjamins. https://doi.org/10.1075/aicr.43

Diehl, L., & Marin, A. H. (2016). Adoecimento mental em professores brasileiros: Revisão sistemática da literatura. Estudos Interdisciplinares em Psicologia, 7(2), 64–85. https://doi.org/10.5433/2236-6407.2016v7n2p64

Eacott, S. (2023). The principled principal: The case of Australian Steiner schools. International Journal of Educational Management, 37(4), 737–751. https://doi.org/10.1108/IJEM-02-2023-0055

Ergas, O., & Hadar, L. L. (2019). Mindfulness in and as education: A map of a developing academic discourse from 2002 to 2017. Review of Education, 7(3), 656–698. https://doi.org/10.1002/rev3.3164

Flood, V. J. (2024). Embodiment in education. In L. A. Shapiro & S. Spaulding (Eds.), The Routledge handbook of embodied cognition (2nd ed., pp. 1–20). Routledge.

Franco, M. A. S. (2016). Práticas pedagógicas de ensinar-aprender: Por entre resistências e resignações. Educação e Pesquisa, 42(3), 535–550. https://doi.org/10.1590/S1517-9702201610151350

Gallagher, S. (2023). Enactive and embodied-enactive approaches to cognition. Cambridge University Press. https://doi.org/10.1017/9781009209793

Gallagher, S., & Lindgren, R. (2015). Enactive metaphors: Learning through full-body engagement. Educational Psychology Review, 27(3), 391–404. https://doi.org/10.1007/s10648-015-9327-1

Gavillon, P. Q., Kroeff, R. F. S., & Maraschin, C. (2020). Enação, ensino e aprendizagem. Arquivos Brasileiros de Psicologia, 72(3), 129–139. https://doi.org/10.14417/ap.1756

Lanz, R. (2003). A Pedagogia Waldorf: Caminho para um ensino mais humano. Antroposófica.

Macrine, S. L., & Fugate, J. M. B. (Eds.). (2022). Movement matters: How embodied cognition informs teaching and learning. The MIT Press. https://doi.org/10.7551/mitpress/13593.001.0001

Macrine, S. L., & Fugate, J. M. B. (2021). Translating embodied cognition for embodied learning in the classroom. Frontiers in Education, 6, 712626. https://doi.org/10.3389/feduc.2021.712626

Martzog, P., Kuttner, S., & Pollak, G. (2016). A comparison of Waldorf and non-Waldorf student-teachers' social-emotional competencies: Can arts engagement explain differences? Journal of Education for Teaching, 42(1), 66–79. https://doi.org/10.1080/02607476.2015.1131364

Maurente, V., Maraschin, C., & Baum, C. (Eds.). (2019). Enação: Percursos de pesquisa. Edições do Bosque.

Nielsen, T. W. (2004). Rudolf Steiner's pedagogy of imagination: A case study of holistic education. Peter Lang.

Nielsen, T. W. (2006). Towards a pedagogy of imagination: A phenomenological case study of holistic education. Ethnography and Education, 1(2), 247–264. https://doi.org/10.1080/17457820600715455

Pestana, S. F. P. (2014). Afinal, o que é educação integral? Revista Contemporânea de Educação, 9(17), 24–41. https://doi.org/10.20500/rce.v9i17.2277

Rawson, M. (2021). Steiner Waldorf pedagogy in schools: A critical introduction. Routledge. https://doi.org/10.4324/9780429299988

Rawson, M. (2018). A complementary theory of learning in Waldorf pedagogical practice. Research on Steiner Education, 9(2), 1–23.

Rawson, M. (2017). The tasks and content of the Steiner-Waldorf curriculum. In K. Avison & M. Rawson (Eds.), The tasks and content of the Steiner-Waldorf curriculum (2nd ed., pp. 1–20). Floris Books.

Schieren, J. (Ed.). (2023). Handbook of research on Waldorf education. Routledge. https://doi.org/10.4324/9781003258988

Shapiro, L., & Stolz, S. A. (2019). Embodied cognition and its significance for education. Theory and Research in Education, 17(1), 19–39. https://doi.org/10.1177/1477878518822149

Silva, N. R., Bolsoni-Silva, A. T., & Loureiro, S. R. (2018). Burnout e depressão em professores do ensino fundamental: Um estudo correlacional. Revista Brasileira de Educação, 23, e230048. https://doi.org/10.1590/S1413-24782018230048

Souza, A. C. (2025). Da teoria ao cotidiano escolar: Cognição incorporada e autoconhecimento na prática pedagógica steineriana [Unpublished doctoral dissertation]. Universidade Federal do Paraná.

Skulmowski, A., & Rey, G. D. (2018). Embodied learning: Introducing a taxonomy based on bodily engagement and task integration. Cognitive Research: Principles and Implications, 3(6). https://doi.org/10.1186/s41235-018-0092-9

Stehlik, T. (2019). Waldorf schools and the history of Steiner education. Springer International Publishing. https://doi.org/10.1007/978-3-030-31631-0

Steiner, R. (2022). A filosofia da liberdade: Elementos de uma cosmovisão moderna. Juruá.

Steiner, R. (2013). A prática pedagógica: Segundo o conhecimento científico-espiritual do homem (2nd ed.). Antroposófica.

Steiner, R. (2019). O desenvolvimento saudável do ser humano (2nd ed.). Antroposófica.

Steiner, R. (2004). O método cognitivo de Goethe: Linhas básicas para uma gnosiologia da cosmovisão goethiana. Antroposófica.

Steiner, R. (1997). Os doze sentidos e os sete processos vitais. Antroposófica.

Steiner, R. (2004). Teosofia: Introdução ao conhecimento suprassensível do homem e do destino humano. Antroposófica.

Steiner, R. (1996). The foundations of human experience. SteinerBooks.

Steiner, R. (1985). Verdade e ciência: Prelúdio a uma filosofia da liberdade. Antroposófica.

Stockmeyer, E. A. K. (2015). Rudolf Steiner's curriculum for Steiner-Waldorf schools (5th ed.). Floris Books.

Stoltz, T., Weger, U., & Veiga, M. da. (2024). Consciousness and education: Contributions by Piaget, Vygotsky and Steiner. Frontiers in Psychology, 15. https://doi.org/10.3389/fpsyg.2024.1342399

Tsortanidou, X., Daradoum, T., & Barberá, E. (2020). Waldorf inspired hyper-imaginative learning trajectories: Developing new media literacies in elementary education. Early Child Development and Care, 192(7), 1–14. https://doi.org/10.1080/03004430.2020.1830260

Van Schie, T. J., & Vedder, P. (2023). Different pedagogies, equivalent results: A comparison of language skills and school attitude between Waldorf school students and public school students in the Philippines. Globalisation, Societies and Education, 1–14. https://doi.org/10.1080/14767724.2023.2193332

Varela, F. J. (1999). Ethical know-how: Action, wisdom, and cognition. Stanford University Press.

Varela, F. J. (1979). Reflections on the Chilean Civil War. Lindisfarne Letter, 8, 1–10. https://podcast.mindandlife.org/wp-content/uploads/2022/10/FV-Civil-War.pdf

Varela, F. J., Thompson, E., & Rosch, E. (2017). The embodied mind: Cognitive science and human experience. MIT Press. https://doi.org/10.7551/mitpress/9780262529365