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Consciousness and Education: A Neurophenomenological Take on Contemplative Pedagogy

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ABSTRACT

Objective: To investigate how contemplative pedagogy—rooted in contemplative consciousness—can reframe educational paradigms by leveraging a neurophenomenological understanding of consciousness as an irreducible, embodied, and emergent phenomenon.

Method: This study adopts a neurophenomenological methodology, integrating first-person experiential insights with third-person perspectives on neural, bodily, and environmental dynamics. The framework is applied to pedagogical strategies that foster contemplative modes of consciousness across four interrelated dimensions: internal awareness, embodied action, intersubjective empathy, and contextual systems.

Result: Contemplative pedagogy manifests across four interconnected domains: 1) Internal dimension: Self-exploration and identification through “innet” consciousness techniques. 2) External dimension: Enacted embodiment via processes of autopoiesis, emergence, and enaction. 3) Intersubjective dimension: Cultivation of empathy, compassion, and contemplative states such as emptiness and groundlessness. 4) Interobjective dimension: Engagement with social structures, extended systems, institutional contexts, and their influence on consciousness. These domains reveal how contemplative pedagogy intentionally cultivates consciousness in holistic and transformative ways.

Conclusion: Framed through a neurophenomenological lens, contemplative pedagogy offers a rich, multidimensional educational paradigm that bridges consciousness theory and pedagogical practice. It underscores the potential for education to cultivate deeply embodied and relational forms of understanding, thus reframing learning as a transformative process rooted in contemplative consciousness.

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Intruduction

Consciousness remains a controversial subject that continues to advance across diverse fields, including education, philosophy, and the philosophy of mind. Within the long-standing mind–body problem, three influential perspectives stand out: the Aristotelian, the Cartesian, and the scientific materialist or physicalist traditions (Crane & Patterson, 2000, xxvi). As a response to these, neurophenomenology offers an alternative by challenging the reductionist accounts of consciousness, often rooted in materialism and dualism. Varela (1996) introduced neurophenomenology as a methodological remedy for what Chalmers (1995) termed “the hard problem of consciousness.”

The neurophenomenological approach emphasizes the necessity of attending not only to neuronal and physiological data but also to first-person accounts of subjective experience. Cognitive phenomena such as perception, emotion, and pain are inseparably linked to first-person subjectivity: they are always experienced by a conscious subject capable of articulating them. Thus, neurophenomenology represents an effort to integrate contemporary cognitive science with the phenomenological tradition, treating lived experience as a legitimate and disciplined field of inquiry. Its central claim is that the hard problem of consciousness can only be addressed productively through collaborative scientific work supported by pragmatic tools that enable the development of a rigorous science of consciousness (Varela, 1996, 330).

Specifically, Varela’s neurophenomenology aims to address the explanatory gap—the divide between the phenomenal character of subjective experience and the physical nature of the brain and body. It is precisely this gap that renders the hard problem particularly resistant to conventional explanatory strategies. Neurophenomenology seeks to bridge this divide by demonstrating that phenomenality can be systematically incorporated into a coherent scientific framework.

This approach adopts an integrative position, proposing that mental and physical states represent distinct yet interrelated levels within a unified reality (Varela, 1979; Battista, 2013; Shabani Varaki & Javidi Kalateh Jafarabadi, 2020). Recent research into brain structures, neural activity, and consciousness has also exerted significant influence on the field of education, shaping practices in teaching, learning, curriculum design, and teacher–student relationships. Education, in this light, emerges as a transdisciplinary enterprise at the intersection of neuroscience, cognitive science, neuropsychology, and philosophy (Campbell, 2011; Shabani Varaki & Babadi, 2014).

In line with this perspective, the present paper does not adopt a conventional empirical methodology. Rather, it advances a conceptual and philosophical argument that situates contemplative pedagogy within broader debates in consciousness studies and educational theory. More specifically, this paper focuses on *contemplative consciousness* (CC), which emphasizes breaking habitual patterns and assumptions. CC rejects the strict separation

between mind and body, instead highlighting their integration as the basis of consciousness. This integration considers both first-person experiential data and third-person perspectives of brain, body, and behavior (Lutz & Thompson, 2003). Rather than becoming mired in abstract philosophical debates on the mind–body problem, neurophenomenology highlights the potential for human transformation. Within this framework, contemplative consciousness challenges conditioned habits, entrenched patterns of thought, and even traditional educational systems—particularly through contemplative pedagogy.

Conceptualizing Contemplative Consciousness

Varela (1996) argued that Western theories of consciousness have extensively sought to provide sufficient explanations for the phenomenon, aiming to resolve the so-called “hard problem” and the explanatory gap. Yet, despite these efforts, they remain unsuccessful. For instance, reductive physicalism conceptualizes consciousness as nothing more than a byproduct of brain processes or physical laws. In this framework, subjective experience has no causal efficacy over the physical world (Revonsuo, 2009, 21). Such approaches, however, encounter internal limitations, reducing conscious experience to mechanistic functions and thereby overlooking its irreducible nature (Varela, 1996).

By disregarding first-person descriptions and subjective dimensions of human experience, as dualism and other reductionist models often do, essential aspects of consciousness risk being lost or collapsed into mere neural activity. Consciousness, however, is simultaneously subjective—reliant on personal observation and lived experience—and objective, insofar as it is shaped and constrained by empirical and natural phenomena (Shear & Varela, 1999, 1). Chalmers (1995) famously contended that neuroscience alone cannot account for consciousness, while Thompson (2004) observed that we lack not only an adequate theory but also a clear sense of the form such a theory would need to bridge the conceptual gap between subjective experience and neural processes.

The reductionist framing of consciousness has also influenced pedagogical theory and practice, leaving unanswered the fundamental question: *what happens to the lived experience of learning?* As Varela (1996) emphasized, what is missing from such accounts is not explanatory coherence but their detachment from human life. “Only putting human life back in will erase that absence; not some extra ingredients or profound theoretical fix” (Varela, 1996). Within reductionist paradigms, experience is diminished to behavior, neural firing patterns, or propositional attitudes. Yet human experience is richly textured with colors, sounds, tastes, and emotions, none of which can be dismissed without rendering an account of consciousness inadequate (Shear, 1999, 359). For neurophenomenology, then, experience is not an epiphenomenon but rather central to any adequate theory of the mind (Thompson, 2006). Consequently, first-person methodologies are indispensable, whether grounded in

phenomenology, psychology, or contemplative traditions (Lutz & Thompson, 2003), since consciousness cannot be confined to neural correlates alone.

Within this framework, neurophenomenology introduces the concept of contemplative consciousness (CC), which integrates body and mind as inseparable dimensions of experience. CC emphasizes the engagement of all six sensory modalities. Even in a simple act, such as eating an apple, one perceives through sight, hearing, taste, smell, touch, enjoyment, and thought. Through this mode of awareness, individuals cultivate the capacity to live attentively in the present moment. Contemplative training thus develops sustained, mindful attention to the dynamic flow of experience (Thompson, 2006, 187), echoing James's (2007, 187) notion of the "stream of consciousness." CC encourages individuals to encounter the world openly, without prejudice, and to release mental turbulence. The contemplative stance aims to liberate consciousness from paradoxical conditions imposed by rigid cognitive frameworks that function like unchangeable mental "software."

Contemplative Consciousness in the Pedagogical Realm

Pedagogy is intrinsically connected with contemplative consciousness (CC) in a reciprocal relationship: consciousness requires pedagogy for comprehensive development, while pedagogy is enriched by an expanded understanding of consciousness (Sheppard, 2001). Neurophenomenology challenges reductionism by adopting nonlinear, complex, and uncertain perspectives, providing a robust foundation for practical educational applications.

Within this framework, CC legitimizes itself and contemplative pedagogy (CP) through four interrelated processes, each with direct implications for classroom practice, as summarized in Table 1:

- 1. Internal educational identification and self-exploration through "innernet" technology:** Learners engage in reflective practices such as journaling, meditation, or guided visualization to explore their internal states and personal learning goals.
- 2. Educational objective (outer) identification through enaction, embodiment, autopoiesis, and emergence:** Students actively construct knowledge by linking theory to lived experience, e.g., through project-based learning, role-play, or hands-on experiments, fostering a sense of agency and personal growth.
- 3. Educational intersubjectivity of CC, including compassionate empathy, emptiness, and groundlessness within CP:** Group discussions, peer feedback, and collaborative problem-solving cultivate empathy and awareness of multiple perspectives, enhancing social and emotional learning.
- 4. Educational interobjectivity of CC, including social embeddedness, extended systems, structures, and contexts:** Real-world engagement, such as community

projects, service learning, and ecosystem studies, situates learners within broader societal and environmental systems.

Table 1. *Contemplative consciousness, page 3*

Subjective	objective
<ul style="list-style-type: none"> • First-person data • Meditation • Self-Consciousness • Softwarelessness • Mindfulness • Self- Transcendence • Self-awareness • Self-regulation 	<ul style="list-style-type: none"> • Third-person data • Embodiment • Enaction • Emergence • Neural Correlation • Neural dynamic • Praxis
Inter-subjective	Inter-objective
<ul style="list-style-type: none"> • Love • Emptiness • Compassion • Empathy • Groundlessness • Loving-kindness 	<ul style="list-style-type: none"> • Inter-embodiment • Extended • Language • Structures • Systems • context

These four processes must operate collaboratively to transform consciousness. If we envision CC as a butterfly, each process represents one of its four quadrants, illustrating the interdependent nature of contemplative pedagogy (Figure 1).

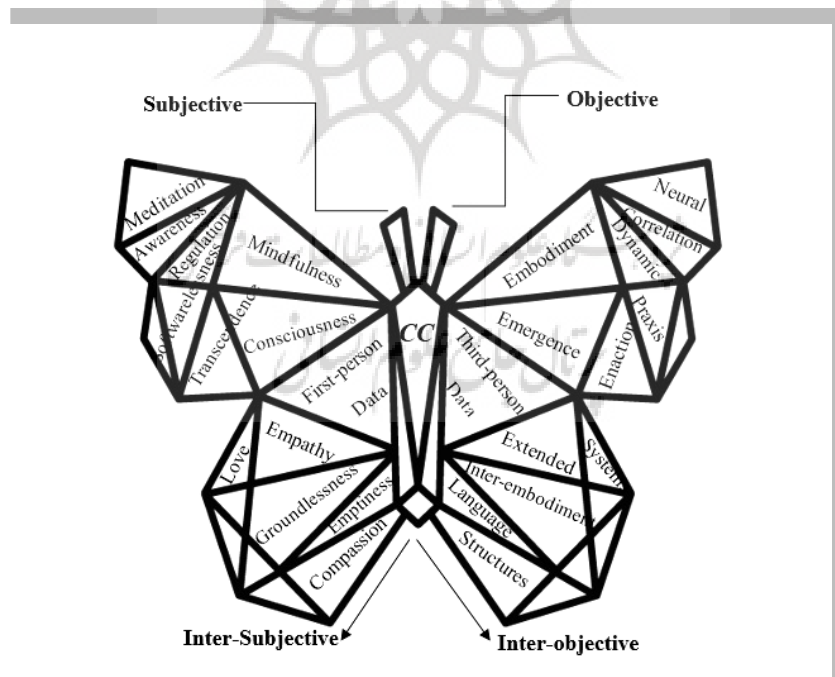


Figure 1. *The process of contemplative consciousness*

These processes must operate in collaboration to effect a genuine transformation of consciousness. To illustrate, if CC were envisioned as a butterfly, each of these four processes would constitute one wing or quadrant of its structure. Pedagogy, therefore, must engage with all four to evolve into contemplative pedagogy.

In practice, CP structures classroom experiences to address learners, content, and process:

- **Learners:** Both students and teachers are viewed as conscious beings capable of cultivating awareness through mindfulness practices. Teachers model contemplative practices, creating an environment of mutual learning.
- **Content:** Curriculum and subjects are approached as dynamic fields of inquiry rather than static information, encouraging reflection, ethical reasoning, and deep engagement.
- **Process:** Knowing unfolds as an interactive, emergent event in the classroom, where experiences, discussions, and activities extend beyond the individual mind into collaborative and environmental contexts.

Through these applications, CC theory moves from an abstract conceptual framework to a tangible pedagogical approach. Students not only acquire knowledge but also develop awareness, empathy, and practical skills that integrate cognitive, emotional, and social dimensions, demonstrating the full potential of contemplative pedagogy.

Internal Educational Identification: Self-Exploration through “Innernet” Technology

Self-exploration in education involves students reflecting on their learning experiences and identifying emotional or cognitive obstacles that may impede understanding. While learners may not immediately resolve all challenges, they can acquire practical methods to interpret and navigate their experiences, transforming reflection into actionable insight.

A central tool in this process is concentration, which supports the cultivation of mindful awareness. However, as [Thompson \(2009\)](#) notes, sustaining attention is inherently challenging: it tends to shift between objects, and students often underestimate the limits of their attentional control. Additionally, introspective experiences are frequently difficult to articulate to teachers.

Mindfulness practices provide a tangible way to address these challenges. By repeatedly anchoring awareness in the present moment, mindfulness stabilizes attention, interrupts habitual patterns of distraction, and allows students to engage actively in learning rather than passively receiving information. For example, short guided meditations, focused breathing exercises, or reflective journaling can help students observe their thoughts, emotions, and habitual reactions during lessons.

[Varela et al. \(2017\)](#) emphasize that mindfulness functions as a non-manipulative tool for examining experience, enabling students to observe their minds more clearly ([Strollo, 2018](#)). Teachers can translate this theory into practice by designing classroom activities that encourage

self-observation, such as reflective discussion prompts, peer-sharing of insights, or self-monitoring exercises tied to learning objectives.

The benefits of this contemplative self-exploration extend across neural, emotional, and cognitive domains. Empirical studies demonstrate that mindfulness practice:

- Alters brain regions associated with memory, empathy, self-regulation, and impulse control (Hölzel, Carmody et al., 2011)
- Enhances emotional regulation and well-being
- Improves cognitive capacities such as attention and working memory

By explicitly linking self-exploration to classroom strategies, educators can translate CC theory into concrete pedagogical practices that foster students' awareness, reflective capacity, and active engagement with learning.

Educational Objective Identification: Enaction, Embodiment, Autopoiesis, and Emergence

The enactive approach, originating in cognitive science, conceptualizes human beings as embodied, self-producing organisms who actively construct their cognitive worlds. As Thompson (2007) explains, this is a theory of dynamic co-emergence: perception, cognition, and motivation arise through the reciprocal interplay of body and environment (Varela et al., 2017). Autonomy, rooted in autopoiesis (Di Paolo & Thompson, 2014), emphasizes how cognitive systems self-individuate, maintaining their organization and distinguishing themselves from non-cognitive systems.

In pedagogical practice, this theoretical perspective encourages attention to both third-person data (e.g., observable neural or behavioral processes) and first-person reports (e.g., students lived experiences). For example, teachers can integrate reflective journals, self-assessment check-ins, or verbal narratives into lessons to capture students' internal perspectives while simultaneously observing classroom behaviors. Thompson (2007) notes that such first-person insights are essential for understanding the physiological and experiential processes of consciousness.

Autopoiesis in education frames learning as an organic, circular process: knowledge, skills, and understanding emerge dynamically through interactions among students, teachers, and the environment. Rigidly prescribed teaching undermines this emergent quality, whereas flexible, responsive pedagogy nurtures growth through iterative feedback loops. Practical applications include project-based learning, collaborative problem-solving, and experiential simulations that allow students to actively construct knowledge while engaging bodily and socially.

From an inactive perspective, mindfulness is an embodied skill, not merely passive observation. For instance, students practicing mindful movement, focused attention in hands-on activities,

or sensorimotor tasks learn to integrate awareness with action. Teachers can model mindfulness as an interactive, embodied practice, linking neural correlates to lived experience, and reinforcing learning as situated in real-time contexts (Varela et al., 2017).

A key challenge to implementing contemplative pedagogy is neglecting learners' first-person perspectives, especially their emotional and subjective experiences. Experience is the foundation for transformation; in CP, students are seen as integrated, embodied agents whose consciousness extends into the environment (Thompson & Varela, 2001). For example, a science lab, art project, or fieldwork activity becomes a space where students engage bodily, cognitively, and socially, directly experiencing the emergent properties of learning.

Pedagogical experiences, therefore, become embodied, enactive, and contextually grounded. While teachers cannot access students' internal experiences directly, they can facilitate verbal articulation, reflection, and collaborative dialogue to make these experiences meaningful and actionable. Enactive pedagogy reframes learning as a stream of consciousness, distributed across mind–body–world interactions, and CP integrates intersubjective and interobjective dimensions across curriculum, teaching practices, and institutional structures. The outcome is not isolated knowledge acquisition but an ongoing, emergent learning experience that extends across life contexts, consistent with the principles of neurophenomenology.

Educational Intersubjectivity of Contemplative Consciousness: Compassionate Empathy, Emptiness, and Groundlessness in the CP System

Consciousness is inherently contextual and socially embedded, shaped by culture, relationships, and collective experience (McInerney, 2013). In contemplative pedagogy (CP), concepts such as compassion and empathy are intersubjective—they emerge through interactions within a shared learning environment and presuppose active social engagement. From before birth, individuals internalize implicit assumptions about communication, thought patterns, and social norms, which influence education, career choices, and everyday behavior. Yet many social and cultural contexts create barriers that inhibit emotional sharing, awareness, and relational growth—conditions essential for fostering intersubjective consciousness.

To address students as whole persons and honor their diversity, educators must create learning environments that actively cultivate compassion and empathy. Practical strategies include:

- **Collaborative projects** that require perspective-taking and cooperative problem-solving
- **Peer dialogue and reflective exercises** that encourage students to articulate and respond to each other's experiences

- **Service-learning or community engagement activities** that situate students within broader social contexts, emphasizing interdependence and ethical responsibility

Rigid frameworks imposed by standardized curricula, high-stakes testing, or competition often suppress relational growth. To counter this, CP advocates for transdisciplinary and experiential curricula that integrate social-emotional learning, real-world contexts, and emergent pedagogical practices (Pastena and Minichiello, 2015). For example, integrating literature, history, and environmental science through collaborative projects allows students to encounter diverse perspectives, practice empathetic reasoning, and develop relational awareness while engaging with meaningful content.

Through these applications, compassion and empathy become measurable skills, embedded in the processes of learning and interaction, rather than abstract ideals. Teachers act as facilitators and co-learners, modeling compassionate engagement, guiding reflection, and fostering environments where intersubjective consciousness can flourish. This approach ensures that relational, emotional, and ethical dimensions of learning are central to the educational experience, aligning theory with practical classroom practice.

Groundlessness and Emptiness

The cultivation of compassion and empathy is most effective in early childhood (approximately ages two to five), a period in which children begin forming psychological frameworks to interpret thoughts, emotions, beliefs, desires, and perceptions (Thompson, 2001). Skilled educators play a critical role in recognizing and responding to the diverse needs of learners, while simultaneously nurturing empathy, solidarity, and compassion. Compassion emerges from empathy: it begins with the recognition of others' difficulties, extends into active concern for their welfare, and culminates in the wish to alleviate suffering.

Within Buddhist traditions, compassion is cultivated through practices of *emptiness* and *groundlessness*, which involve setting aside habitual patterns of thought and behavior. Varela et al. (2017) argue that the discovery of groundlessness permeates science, the humanities, and daily life, reflecting the uncertainties of existence. While many experience groundlessness as destabilizing, when embraced, it reveals an intrinsic openness that manifests as spontaneous compassion. Such an orientation challenges dominant educational paradigms that reinforce competition, division, and alienation.

Groundlessness signifies the dissolution of rigid structures and the deconstruction of assumptions such as "everything is under control." Emptiness, meanwhile, does not connote nothingness but the interdependent and contingent nature of all phenomena. As Weed (2002) explains, emptiness demonstrates that entities lack intrinsic existence and can only be understood as parts of wholes. If education is to foster planetary consciousness, it must address

collective tendencies toward grasping and control, replacing them with practices of release and openness (Varela et al., 2017).

Holistic self-care and mutual well-being are integral to this pedagogical orientation (Stoewen, 2017). The interdependence of individual and collective wellness offers an essential pedagogical lesson. For instance, during the COVID-19 pandemic, educators worldwide demonstrated compassion, empathy, and collaborative care by supporting their colleagues, students, and communities. These actions embodied forms of servant leadership that prioritized solidarity and connection over isolation (Tokuhamas-Espinosa, 2021; Roberts, 2022).

Educational Interobjectivity of Contemplative Consciousness: Social Embeddedness, Extended Systems, and Context

The transformation and deepening of consciousness always occur within specific social, historical, and institutional contexts. As autopoietic beings, humans inherit the structural properties of prior generations while simultaneously participating in their transformation, influencing the future reconstruction of social systems. Maturana and Varela (1980) emphasize that human existence is fundamentally situated within a linguistic, cognitive, and social sphere, meaning that consciousness is distributed across relationships, institutions, and cultural structures.

In pedagogy, this principle translates into recognizing that students' learning experiences are embedded within larger social systems such as families, schools, communities, and educational policies. For example:

- Collaborative, community-based projects situate learning within social and environmental contexts.
- Institutional initiatives, such as restorative justice programs or equity-focused curricula, foster awareness of systemic influences and cultivate relational responsibility.
- Digital learning environments and online ecumenical schools provide marginalized learners and educators with access to reflective, community-oriented learning spaces.

However, global and institutional systems of power can fragment consciousness and inhibit interobjectivity. Historical and ideological controls—ranging from behaviorist educational models to authoritarian curricula—can limit reflective awareness, creating divisions between “self” and “other” and discouraging critical engagement. As Maturana and Varela (1980) observe, restrictive regimes limit the range of experiences available to learners, suppressing dissent and obstructing the development of contemplative consciousness.

Despite such constraints, neurophenomenology and CP suggest ways to cultivate agency and awareness even in restrictive environments. Early education that emphasizes empathy, compassion, and groundlessness helps learners recognize interdependence, resist ideological

conditioning, and develop relational and systemic awareness. Pedagogy itself becomes an autopoietic system, existing not as a linear input-output model but as a dynamic network of interactions in which students, teachers, content, and social context co-produce learning (Varela, 1979, 1995).

In practical terms, contemplative pedagogy guided by interobjectivity encourages:

- Awareness of social systems and institutional influences on learning
- Collaborative and participatory learning practices where students and teachers co-create knowledge
- Integration of digital and community platforms to broaden access, foster solidarity, and support reflective engagement beyond the classroom

Through these approaches, educational interobjectivity transforms learning into a socially situated, relational, and emergent process. Students develop critical consciousness, empathy, and collaborative competence, enabling them to navigate and reshape the social structures they inhabit, aligning complex theory with tangible educational practice (Roberts, 2022).

Conclusion

Consciousness remains a central concern in contemporary philosophy of mind. Neurophenomenology addresses this concern not by rejecting prior theories but by extending and refining them, highlighting their limitations while preserving their insights. At its core, neurophenomenology identifies consciousness with lived experience, reaffirming the primacy of subjectivity (Varela, 1996).

The essence of consciousness lies in experience and its operational dynamics. Neurophenomenology emphasizes the inseparability of the organism from its environment, wherein the individual experiences and interprets the world calmly, non-judgmentally, and attentively. Through mindfulness, consciousness manifests in the moment-to-moment integration of mind, body, and world, allowing experiences to emerge fully and reflectively. From this perspective, consciousness is inherently contemplative—a reflective stance that begins with suspending judgment and attending to phenomena as they arise.

Pedagogy informed by neurophenomenology similarly emphasizes foresight and responsiveness, attending to the fluidity and dynamism of conscious experience. It encourages learners to engage with authentic, first-person experiences, fostering a layered, interactive, and expansive approach to learning. In this framework, contemplative consciousness (CC) dissolves the traditional boundaries between mind, body, and world (Figure 2).

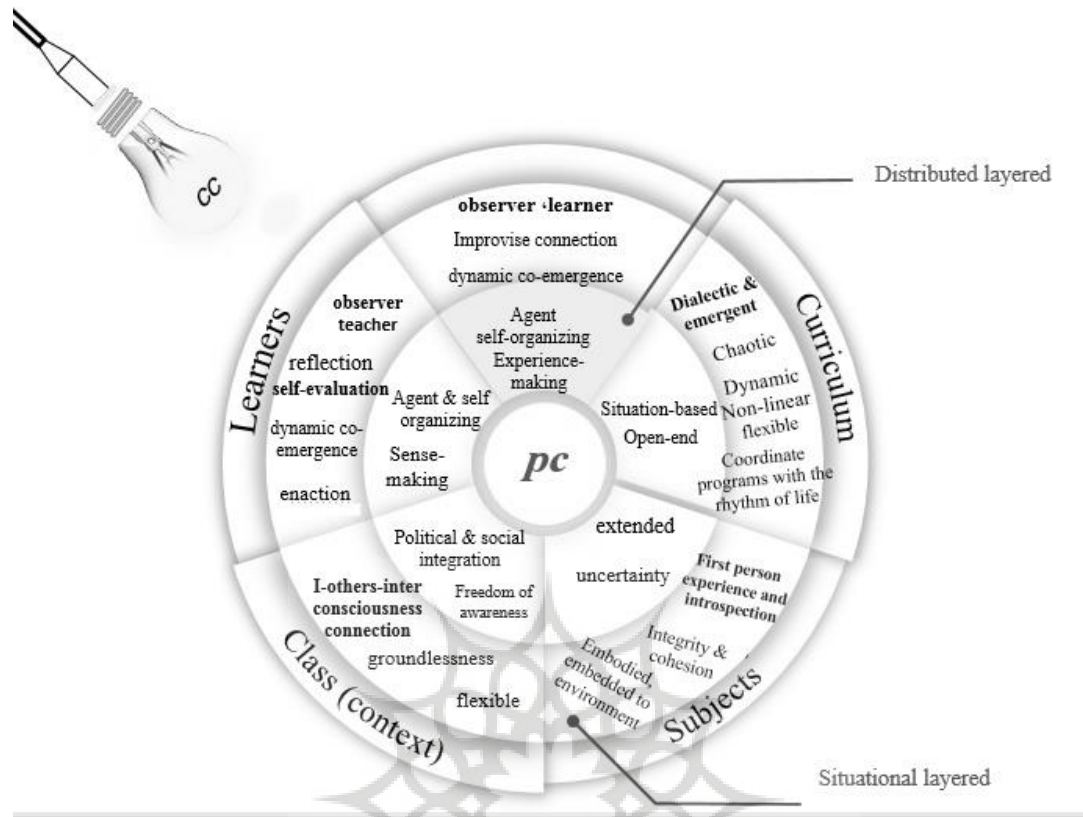


Figure 2. *The pedagogical narrative of contemplative consciousness*

Pedagogy guided by CC aligns education with life itself. Students do not merely attend school; they inhabit it as embodied beings, whose minds, bodies, and environments are inseparably connected. Learning emerges through sensorimotor engagement with the world, emphasizing active participation, exploration, and reflection (Varaki & Javidi Kalateh Jafarabadi, 2020). Consequently, the pedagogical environment is not a neutral or detached space but an extension of the learner’s mind–body–world continuum.

In contemplative pedagogy, both students and teachers are conceived as learners and observers. Education becomes a dynamic, non-linear, dialogical process (Mahdavi, Shabani Varaki, & Javidi Kalateh Jafarabadi, 2022), in which conventional boundaries between teacher and learner dissolve. All participants simultaneously act as transmitters and receivers of knowledge. The education system, reimagined as an emergent, interactive network, facilitates the reconstruction of lived experiences, the generation of new learning opportunities, and the cultivation of awareness.

Ultimately, contemplative pedagogy integrates intersubjectivity and interobjectivity, fostering relational, social, and systemic dimensions of consciousness. It positions education as

an open-ended, collective journey of awareness, in which learning continually unfolds through engagement with self, others, and the broader world.

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