

## Methodological Critique of Teaching and Learning Methods from the Perspective of Embodiment

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### Article Info

#### Article type:

Research Article

#### Article history:

Received 10 Oct. 2024

Received in revised form 14

Dec. 2024

Accepted 15 Jan. 2025

Published online 01 Jun. 2025

#### Keywords:

Education,

Learning,

Embodiment,

Neurophenomenology

### ABSTRACT

**Objective:** The main objective of the present study is to explain the methodological difficulties of teaching and learning approaches from the perspective of embodiment.

**Methods:** The research method is logical inference, which aims to clarify the conceptual structures, analysis, and logical relevance of propositions in order to achieve a valid understanding of what, how, and why teaching and learning are.

**Results:** The outcome indicates that prevailing pedagogical methodologies encounter challenges that are both dualistic and related to the delivery of objective and subjective experiences, founded upon the existential interplay between teaching and learning; this necessitates the incorporation, augmentation, synthesis, and engagement through neurophenomenology within the intricate dimensions of teacher-learner dynamics situated within the physical, cultural, and emotional milieu of the classroom.

**Conclusions:** Based on the holistic and embodied approach to teaching and learning methods; the pillars of teaching, learning, teacher-learner relationships, and the design of the learning environment need to be revised. Therefore, in teaching and learning, the proposal of a situational, neurophenomenological, flexible, fluid, and bricolage-based approach is emphasized. Another result of the research is that the curriculum is dynamic, evolving, emerging, holistic, and multifaceted. The teacher-student relationship is dynamic and layered. The learning and assessment environment is both cognitive and emotional, and ultimately all the elements of teaching and learning are integrated.

**Cite this article:** Babaei, B. & Shabani Varaki, B. (2025). Methodological critique of teaching and learning methods from the perspective of embodiment. *Iranian Journal of Educational Research*, 4 (2), 1-11.

DOI: <https://doi.org/10.22034/4.2.1>



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DOI: <https://doi.org/10.22034/4.2.1>

Publisher: University of Hormozgan.

## Introduction

Serious discussions have taken place about the nature of teaching and learning methods in the last decade ([Schilhab & Groth, 2024](#)). In light of the multitude of theories pertaining to teaching and learning, each offering distinct rationales for its approach; succinctly, four significant metaphors of them can be delineated ([Mayer, 1992](#)). These four teaching and learning frameworks have been recognized through various empirical studies, which encompass: "content presentation and transmission", "activity organization", "teaching facilitation", and "learning construction". Each of these frameworks presents a reductionist perspective on the comprehension of learners, failing to adequately account for the intricate dynamics of the cognitive processes and lived experiences of both educators and learners. In alignment with neurophenomenological insights, a paradigmatic transformation in pedagogy and cognition is imperative ([Gallagher, 2023](#)). It is feasible to approach teaching and learning in a markedly distinct manner, aiming to optimize educational practices in the face of the complex and uncertain future, through the revision, semantic expansion, and integration of the dual constructs of "teaching" and "learning."

In accordance with the preceding discussion; the assertion put forth in the present article, grounded in the situational embodiment framework derived from neurophenomenology, endeavors to articulate an alternative conceptualization of teaching and learning. This conceptualization of teaching and learning is attuned to the contextual, temporal, and spatial conditions, advocating for a holistic perspective that, in addition to emphasizing neurobiological components of education, also incorporates the cultural and emotional dimensions of both the teacher and the student. To actualize this objective, a pivotal inquiry has been posed: how can the distinctive characteristics of alternative teaching and learning be articulated in the context of neurophenomenological assumptions? Furthermore, what are the methodological implications of such an inquiry?

## Criticism of research and ideas of existing documents

Numerous scholarly investigations have elucidated the existence of a dualistic paradigmatic dichotomy regarding the domain of teaching and learning methodologies, manifesting as a propensity to polarize between objectivist and subjectivist presuppositions ([Sharafi et al., 2019](#)). In critiquing such epistemological stances within the realm of teaching and learning, objectivist and subjectivist frameworks have been conceptualized from an idealistic vantage point. To articulate this further, it can be posited that experiences and realities do not exist in a state of

passive availability for discovery; rather, they are actively constructed by the individuals who engage with them. Regardless, the challenges posed by objectivism and subjectivism in educational discourse have resurfaced as significant issues within the paradigms of neurophilosophy and neurophenomenology. Neuro-philosophy has proffered pedagogical guidelines that adhere to the tenets of brain-based learning. The cardinal principles among these include: the adaptability of the brain, the parallel processing capabilities of the brain, the reinforcement of neural networks, synaptic plasticity, and a focus on the anatomical and functional aspects of each learner's brain.

This article posits that while the feasibility of such pedagogical practices is indeed attainable, the potential for comprehensive and precise teaching and learning—particularly within intricate contexts—has been overlooked for the conscious learner amid the complexities of contemporary society. Furthermore, within an educational framework founded on situational embodied agency, the influence of the educators' presence (including their personality traits and dynamic attitudes), the contextual and situational aspects of teaching and learning, the nature of the learning content, the learners' proficiency levels, the assessment methodologies employed, and the means through which learners develop competencies necessitate a pragmatic and phenomenological synthesis of these elements in actual teaching and learning practices. Consequently, it appears that in the context of pragmatic integration, engaging with the educational experience and the modalities of its implementation in accordance with situational demands and efficacy warrants careful consideration. Scholars such as [Barsalou \(2015\)](#) contend that teaching and learning predicated on pragmatic considerations transcends mere application of instructional skills and methodologies for knowledge acquisition. Educators, akin to researchers engaged in pedagogical practice, perpetually reconstruct the learning experiences of students within the classroom environment. In light of phenomenological integration, both teachers and students inhabit the lived experiences of teaching and learning, fully embodying the cognitive attributes of awareness and attentiveness, moment by moment. This discourse suggests that the pragmatic and phenomenological integration, characterized by the dimensions of presence, temporal awareness, and intentionality, cannot yield a singular, universally applicable prescription for teaching and learning. Through a metaphorical lens inherent in the present investigation, teachers can be likened to painters who actively craft

their creations, or in the Greek term, *poiesis*, and should not be regarded merely as photographers ensnared within the confines of conventional imagery ([Eisner, 2003](#)).

### **The Challenge of Teaching-Learning Approaches: Current Situation**

The complexities inherent in the domains of teaching and learning have long captivated the attention of philosophers; however, regarding the development of pedagogical methods, theorists such as *Fenstermacher* assert that teaching and learning are fundamentally interconnected ([Akimenko, 2016](#)). Consequently, an existential relationship exists between these two constructs; the variables pertinent to teaching ultimately revert to the process of learning ([Babaei et al., 2018](#)). Thus, the dynamics of educators' interactions with learners within the pedagogical context remain consistent. As previously noted, various pedagogical approaches can be differentiated based on this premise. In the initial approach, the teacher assumes a pivotal role in disseminating predetermined content. The instructor delineates the educational subject matter and imparts information to the learners ([Sharafi et al., 2019](#)). In the activity organization approach, educational practices are tailored to align with the cognitive developmental stages of the learners. The structuring of learner interaction with their environment, which includes the teacher, is executed through a sequential process of exploration, explanation, and transfer.

The third pedagogical approach is characterized as teaching facilitation. In this collaborative teaching and learning paradigm, teachers prioritize the quality of their relationships with the learners. This approach emphasizes the cultivation of individual consciousness as a fundamental source for recognizing transformative changes in students. [Varela \(1997\)](#) posits that each pedagogical approach is beset by methodological limitations. He contends that the human cognitive system functions as an integrated whole; thus, cognition is developed within a dynamic cycle that encompasses both subjective and objective experiences, including those of the brain, mind, body, and environment. Consequently, this perspective cannot conceive of education as occurring solely within the confines of the brain or the mind, or in the absence of both. If learning is situated within the brain, then the concept of mind-centric education is rendered invalid. In a more nuanced interpretation, if education is directed towards the learner, who is perceived as a black box in the behaviorist framework, then the significance of mental processes and electromagnetic interactions during the pedagogical activities, informed by brain-based research and substantiated through brain imaging, becomes inconsequential. Teachers who find themselves

entrenched in a physicalist or subjectivist interpretation of education, or who adhere to a dualistic paradigm, may propose a radical interpretation regarding the dichotomy of brain versus mind.

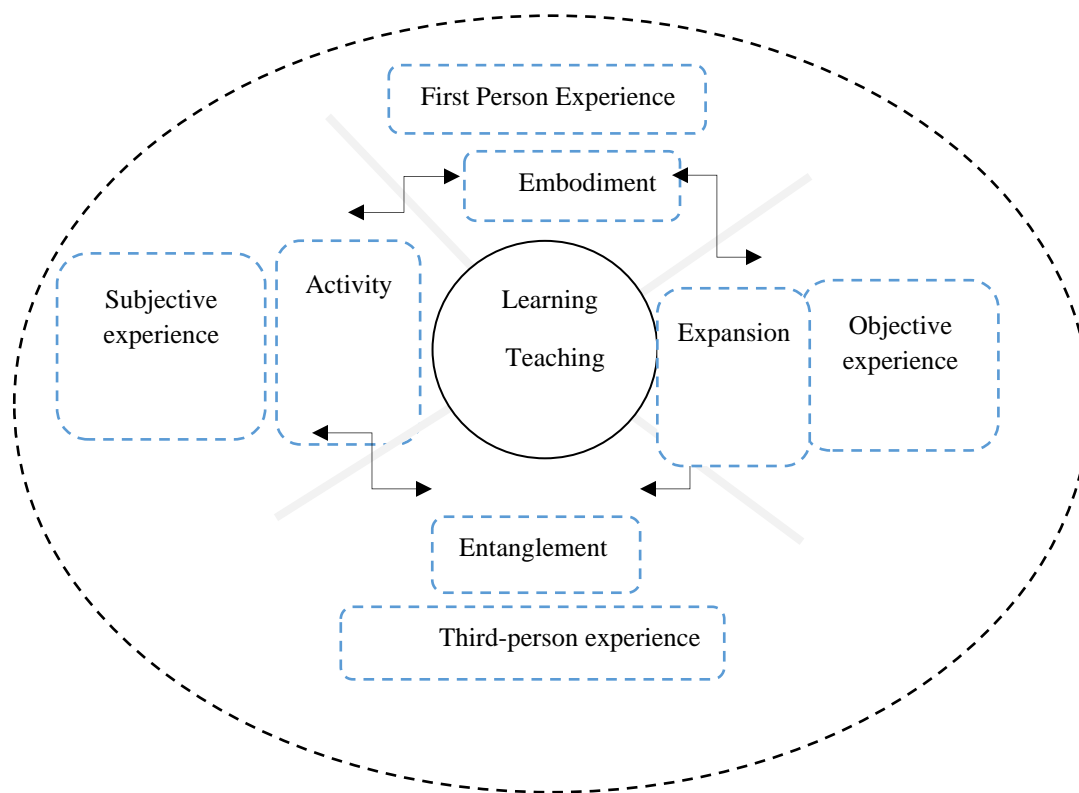
## Material and Methods

In order to achieve a valid understanding of the what, how, and why of teaching and learning, the method of logical inference has been used. This method is based on clarifying concepts and conceptual structures based on description, statement of purposes, structuring of problems, analysis, and logical connection of propositions in order to achieve a valid understanding.

## Results

### Main themes of the embodied approach and its achievements for teaching and learning

According to the situational embodied framework, the processes of teaching and learning transpire within a specific context; these processes are intricately connected, with teaching and learning functioning as dynamic constructs that evolve over time. In alignment with this framework, both learning and teaching are cultivated through the corporeal medium. In other terms, the entirety of the human anatomy comprises systems that engage in communication and exert mutual influence. Consequently, all cognitive, emotional, and physical dimensions are integral to the learning experience. This integration manifests through various physiological components, including hormones, cells, and biochemical substances, concurrently with conscious awareness and cognitive deliberation. Moreover, the sociocultural environment exerts a significant impact on the processes of teaching and learning. Hence, given that these functions are systemic and transformative over time, it is inadequate to characterize learning solely as a neurological or purely phenomenal occurrence. An existential linkage also exists between teaching and learning with respect to the brain and the mind. In this regard, neurophenomenology emphasizes the significance of third-person phenomenal experiences alongside first-person introspective accounts. This phenomenal experience is constituted through interaction with the surrounding environment and cultural context ([Froese, 2015](#)).



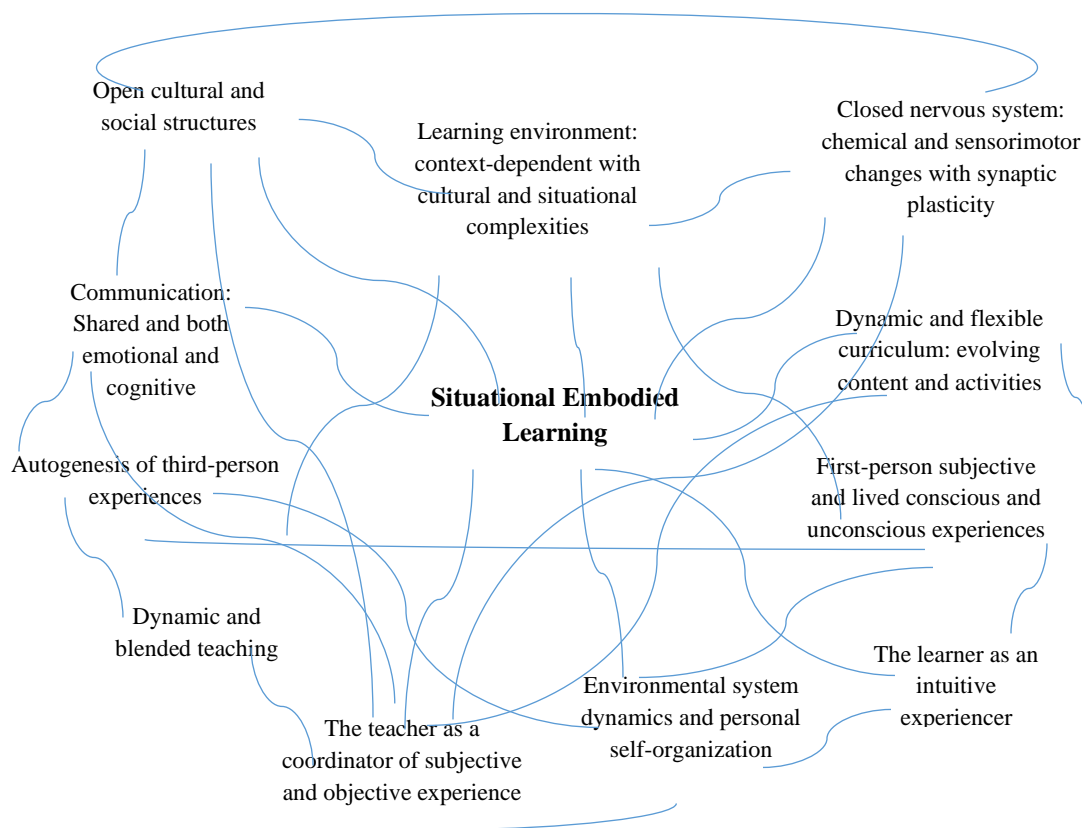
**Figure 1.** Dimensions and aspects of the 4E model affecting learning and teaching

Since teaching and learning are situationally embodied by their existential relationship, it can have significant consequences in the design of teaching-learning environments, which itself indicates the importance of embodied cognition. In this sense, the human body is first understood in interaction with the environment, because the body itself is a receptive material for consciousness. Learning and teaching are dynamic phenomena that simultaneously create, adapt, and modify objective and subjective experience in the situation. This triple process of creation, adaptation, and modification is nonlinear. Nonlinearity means that first-person and third-person experience are integrated in the encounter with the situation. Several achievements are conceivable from such an approach (Table 2).

**Table 2.** Achievements of situationally embodied teaching-learning

Components of teaching-learning	Teaching-learning achievements
Learning	Complex, dynamic, layered, contextual, self-generating, emergent, unique, nonlinear
Teaching	Practical, embodied, situational, holistic, flexible, combined, interactive, collective
Curriculum	Dynamic, emerging, holistic, multifaceted, orthogonal, integrated and eventful
Learner	Knower, aware, self-organizing, active, self-finding and self-directed
Instructor	Positional, synergistic, meaning-making, linking object and mind
Instructor-learner relationships	Shared understanding, both emotional and cognitive, active, dialogic
Learning environment	Self-generating, integral, context-dependent, orthogonal
Evaluation of learning	Integrated, bricolage and practical

In addition to the achievements listed in Table 2, the main characteristic of the situationally embodied teaching and learning methodology is its bricolage. *Bricolage* means layered, interwoven, and fluid, which is borrowed from Hall's theory (Tommerdahl, 2010), and in the case of situational embodied learning, it means the learner's conscious involvement in the combination of resources in the learning and teaching situation. This type of learning and teaching incorporates a set of concepts with bodily affordances into a new semantic structure that is different from its initial structure. In other words, in this type of learning, a dynamic new phenomenon is created between the brain system in terms of neural flexibility and the learner's open cultural and social structures. In the teaching-learning process, dynamic systemic processes and personal self-organization are at work. In this approach, teaching and learning have a common emotional and cognitive aspect, and thinking is intertwined with emotion. The learner is the main element of both teaching and learning; an integration of objective and subjective experience is formed in the context of the teaching and learning experience. Educational and Learning Experiences of Bio-conscious experiences are intuitions that are both conscious and unconscious. The element of learning and teaching experience is self-generating and they grow each other. In this sense, learning and teaching are formed in the situation and the moment. Based on it, teaching and learning is a dynamic and composite process. At the macro level, culture and all its components are related to the biological and organic aspects of the learner and the teacher as a complex element in the situation. The fluidity of cognition within the person and the context of the environment encompasses all biological, emotional, cognitive and psychomotor dimensions (Figure 2).



**Figure 2.** Situational Embodied Learning Components

## Discussion

What appears to render situational embodied teaching and learning more efficacious than alternative theories is the facilitation of an understanding of the existential nexus between the teacher and the students in the context of pedagogical processes. In accordance with inclusive conceptualization of teaching and learning, and consistent with the perspectives of scholars such as [Varma et al. \(2008\)](#), [Blankenship \(2020\)](#), [Sinha \(2024\)](#), and [Froese and Sykes \(2023\)](#), the implementation of layered and eventful curricula is advocated. Consequently, the prevailing curricula manifest inadequacies when employing a linear paradigm, merely referencing pre-established and readily accessible content.

Furthermore, grounded in the premise of situational embodiment, it is recommended that teachers customize the learning experiences of students in accordance with the contextual dimensions of learners' existence. Within the educational framework, teachers, fulfilling the roles of regulators



and adjusters, must avoid the misleading dichotomies of objective and subjective educational paradigms. In this context, situational embodiment in pedagogical processes aligns with the investigations conducted by [Mahdavi et al. \(2022\)](#) on embodied mindfulness and holistic learning, [Sharafi et al. \(2019\)](#) on phenomenological curricula, and [Babaei et al. \(2018\)](#) regarding embodied learning.

Ultimately, situational embodiment education is characterized by a multifaceted and bricolage perspective. Thus, within the interactions between teachers and students, the significance of both emotional and cognitive commonality becomes paramount. A transition from unidimensional teaching and learning approaches, characterized by a linear teacher-learner dynamic, to multifaceted methodologies encompassing situational, synergistic, meaning-making, collaborative, and dialogic relationships is anticipated.

### Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

### Author contributions

BB and BS contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

### Funding

The authors did (not) receive support from any organization for the submitted work.

### Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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