

## CHANGING POSTURE: THE PERSPECTIVE OF EMBODIED PEDAGOGY

### CAMBIARE POSTURA: LA PROSPETTIVA DELLA PEDAGOGIA DEL CORPO

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#### Abstract<sup>1</sup>

The current adaptation in didactics, due to prevent Sars-Cov-2 spread, involves the massive use, by institutions, of distance learning. This brings into focus the risk of the complete removal of bodies in the process of teaching and learning. In this article we discuss the epistemological posture of Embodied Pedagogy focusing its common roots with Embodied Cognition's framework. Then, we present two practices, typical of Embodied Pedagogy approach, in light with their connection with findings in neuroscience and arguing their enactive nature. In detail, we present examples for their implementation both in presence and in distance educational settings.

Il contemporaneo adattamento in corso nella didattica per contenere il contagio di Covid19 coinvolge l'uso massiccio, da parte delle istituzioni, della didattica a distanza. Questo porta l'attenzione al rischio della rimozione completa dei corpi dal processo di insegnamento-apprendimento. In questo articolo argomentiamo la postura epistemologica della Pedagogia del Corpo focalizzando le sue radici comuni con l'approccio dell'Embodied Cognition. Successivamente, presentiamo due pratiche, tipiche della cornice della Pedagogia del Corpo, alla luce della loro connessione con contributi neuroscientifici, e argomentando la loro natura enattiva. In particolare, presentiamo degli esempi della loro attuazione in contesti educativi in presenza e a distanza.

#### Keywords

Embodiment, Embodied Pedagogy, autobiography, improvisation

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Il presente contributo è il risultato di una progettazione comune fatta di confronti, scambi e integrazioni fra gli autori. Per quanto riguarda le responsabilità individuali nella redazione, i paragrafi sono così attribuiti: 1: Author 2, 2: Author 3 e Author 1, 3: Author 1;

## The epistemological posture of Embodied Pedagogy

The paradigm of Embodiment highlights the embodied, situated and enacted nature of cognition; many disciplines and fields of research are thus involved in this gaze, and the ground of exchange can exist on many levels. In this article we'll focus on the perspective of Embodied Pedagogy from an enactive point of view. Since the current situation, as we write, is dominated by events correlated to a pandemic, which force us to apply distance learning educational settings, we think it can be an important resource in order to embrace an enactive perspective on education. The dialogue between Embodied Cognition and Embodied Pedagogy enhances the value of sensations, perceptions and emotions in cognitive and teaching/learning processes, encouraging the re-organization of online settings and proposals in this direction. For this reason, we articulate a perspective on Embodied Pedagogy from the initial, conceptual points of Embodied Cognition and, within this theoretical perspective, we propose the analysis of two practices, typical of Embodied Pedagogy, that we think can suggest tools and working methodologies for practitioners and professionals, to find ways of involving bodies in their pedagogical proposals, from remote to in presence.

Enactive views on Embodied Cognition (Gallagher and Varela 2003; Thompson 2007; Thompson and Varela 2001; Varela, Thompson and Rosch, 1991) are basically found on the assumption that bodily processes shape and contribute to the constitution of consciousness and cognition in an irreducible way (Gallagher, 2011): biological aspects of bodily life, including organismic and emotion regulation of the entire body, have a permeating effect on cognition, as do processes of sensori-motor coupling between organism and environment.

« [The enactive epistemological approach] bring about our experience of the world, including our sense of self ... and extend across complex couplings of the brain, the rest of the body, and the environment » (Thompson, 2016, p.20).

Enaction sees the lived body as a system that encompasses the interaction between body and mind, body and environment, and environment and mind, and focuses on embodied social interaction as mutual participatory sense-making, bridging cognitive science and human experience. The circular interaction between Science of mind and human experience is exactly the core of "The Embodied Mind", the work that got started the enactive embodiment. The authors - F. Varela, E. Thompson and E. Rosch – in continuity with Merleau-Ponty's phenomenological perspective, declare that's not possible to understand the movement of knowledge without inquiring its "central pivot": the embodiment of knowledge, of cognition and of experience itself. This work, from 1991, focuses on the perspective on cognition as enaction, and opens to a field of exchange in various disciplines: from the practices of body awareness to social sciences. The purpose was creating dialogues between a mindful attention to everyday experience and a scientific perspective on mind's nature, in order to prevent the born of a divided culture, in which scientific conceptions about life and cognition, on the one hand, and the daily self-comprehension experienced on the other became incompatible.

These views are an important epistemological frame and reference point for Embodied Pedagogy, as they orient and support our research - as Embodied Pedagogy research group - in articulating and understanding embodied elements rooted in learning and teaching processes. In December 2016, Evan Thompson gave a lecture at a conference about the relationship between Embodied Cognition and performative arts<sup>1</sup>; he criticized how bodily experience in awareness practices is sometimes studied in a reductionist way in some fields from "embodied cognitive science"<sup>2</sup>. As a matter of fact, the concept of Embodied Cognition is not a settled one: a variety

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1 Conference: "BOK, A Body of Knowledge: Embodied Cognition and the Arts", UCI Clair Trevor School of the art, University of California, Irvine, 8-10 December 2016.

2 The focus of his speech was on the article: Lutz A., Amishi J., Dunne P., Saron J. D., Clifford

of theorists have attempted to outline different approaches and meanings related to this concept (Gallagher, 2011), depending on the role of the body in explaining cognitive activities.

In the conference, Thompson encouraged researchers to find new scenarios, calling for a stricter collaboration between embodied disciplines, artistic performance and neuroscience studies to carry on an enactive and a non-reductionist paradigm, so that social-cultural complexity and bodily competences, specific of each discipline, could dialogue in investigating human cognition.

From this point of view the theoretical frame of Embodied Pedagogy (Gamelli, 2011) embrace this challenge as the interest of this discipline includes educational practices of experts and specialists of the body, coming from different fields. Its main feature is a cross-sectional formative attitude, addressed to anyone who is involved in educational and care giving contexts: a dimension of discovery, opening to senses and involvement of thinking-body-emotion. Embodied Pedagogy wants to critically reconsider the common way of working with education and care where the body turns out absent, untapped, disciplined or only spoken (the theory without embodiment is one of the big limits of academic knowledge). In this perspective the embodied training in education and care focuses on listening and on the competence of being present. For this reason, we can say that Embodied Pedagogy offers a change of posture (Ferri, Gamelli, 2018). In its traditional, biomechanical, definition, posture is the static configuration of a body in the space and the relative relationship that occurs between its segments. In contrast, from an enactive point of view, the word “posture” is related to an action and it has a dynamic sense: it is the resultant of a sort of an “embodied, global learning”, linked to the way in which emotions, intentions, motivations, direction and execution of the action are organized while the action is still ongoing. The consciousness of bodily posture is not only the consciousness that a mind can have of the body, but in an enactive perspective includes also the embodied consciousness that a living being directs towards the world and its perceiving experience. Therefore, the change of posture is not only an individual matter: it has a wider dimension that includes all the subject’s world references, in their complexity. Embodied pedagogy, in summary, aims to cultivate, take care and enrich the awareness of our posture, which is the embodied resulting of our way to stay in relationship with the world. In the following paragraphs we present two practices developed in the framework of Embodied Pedagogy, where this aim is considered with regards to embodied cognitive assumptions, in physical and virtual settings.

## **2. A Narrative posture: Embodied Simulation and body storytelling**

Neurosciences helped to discover how experiences, relations and interpersonal communications are possible thanks to our brain structures, but also shape them simultaneously. For example, positive interpersonal experiences can enhance the process of brain development and the self-regulation capacity, while deprivation and neglect experiences can bring to adaptive changes of the nervous system<sup>3</sup>. The discovery of mirror neurons has been another decisive point to understand intersubjectivity in a new way. Thanks to the concept of “Embodied Simulation”, intersubjectivity is no more conceived as possible only due to high cognitive processes. Within this new paradigm, intersubjective relations are possible not because of the attribution of mental state to others, but because the mirroring of body status. Other people are not similar to us because they have a similar mind, but because they have a body, which is not just resembling ours, but it could be ours indeed<sup>4</sup>. Intersubjectivity is therefore strongly linked to

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D., (2015), Investigating the phenomenological matrix of mindfulness related practices from a neurocognitive perspective in *American Psychologist*, 70, (7), pp. 632-658.

<sup>3</sup> For further reading: Cena, L., Imbasciati, A. (2014) *Neuroscienze e teoria psicoanalitica. Verso una teoria integrata del funzionamento mentale*. Springer, Milano.

<sup>4</sup> For further reading: Baccarini, M., *Il contributo delle neuroscienze*, in Gamelli, Mirabelli (2019), *op. cit.*

intercorporeality. Body is the meeting point of the self and others and the first possible form of narrative, telling the way one lives the world. It's a storytelling which does not tell abstracted and symbolic concepts, but it is pragmatic; it is not verbal, but pre-verbal. When we see someone acting or making a gesture, we are observing the narrative of their body, and we watch it not as simple spectators, but we perceive others' actions and expressions as ours indeed: observing gestures of others evoke our internal representations of those actions' same body status. Bodies' storytelling is intimate, authentic, impossible to mediate with verbal symbols.

These discoveries are coherent with the tendency of our research group, which recently investigated the relations between autobiographic practices and body practices (Gamelli, Mirabelli 2019). Autobiography is obviously a practice that is traditionally linked to the verbal channel, while experts in body practices don't usually explore the narrative and more verbal side of their proposal. Again, research in neurosciences confirms that the two poles are not so easily splittable: the motor area in human brain not only activates when an action is performed, but also when words or sentences about actions are elaborated<sup>5</sup>; the motor area responsible of planning and performing gestures, e.g. "grabbing" or "lifting", activates also when those gesture are observed in others or when the word describing those gesture is read<sup>6</sup>. The concept of "affordance" (Caruana, Borghi 2016) enhances this strong relation between high cognitive processes and sensory motor system, concluding that perception and sensory system are fundamental even in making moral decisions. It seems evident that opposing the body and the mind, the body and the verbal channel, is deeply misleading. Gestures themselves are not transformative, nor words: what is transformative is their interrelation with every other system of signification; the purpose of education is therefore organizing and articulate this system of gestures-words (Cappa, 2016). For this reason, developing reflections and practices that holistically comprehend body and narrative of self seems of primary importance.

Bodies are part of a history and they're located in time and space. Living bodies tell about their life when they show their metamorphosis, even the difficult ones. Our bodies, even in the details that we don't appreciate, testify that we belong to a history written by ancestors; their transformation is a destiny, consequence of choices that were made in the past, when we were not alive: they represent our legacy to someone who will follow us. We are not used to linger deep in the observation of these traces in our skin, faces and colors, on the contrary, we are drawn to remove those individual differences to homologate to a standard. Here we present an example of a practice that is both autobiographical and bodily.

*Two chairs are one in front of the other, in the center of the room. Two people volunteer to start. I invite them to look the other in the eyes, for some minutes, like they're taking a photo with their eyes, memorizing with precision the face of the other. Then, I ask them to close their eyes. With their mental photograph of the other's face, I ask them to flip through their personal "photo album", where all the faces of the people they know are stored. When they find a face, which resembles the one's memorized a little before, I ask them to "take that photo away". I give the couple some minutes to do this. Then, I anticipate the next moves: they will open their eyes, look at each other, and, alternately, they will say to each other: "You are not (name of one of the people in the photo they've taken away), you are (name of the other)". They must do it as many times as the resemblances they've found out. But most of all, they need to listen to sensation and emotions of this experience.<sup>7</sup>*

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5 For further reading: Buccino, G., Binkofski, F., Fink, G.R., Fadiga, L., Fogassi, L., Gallese, V., Seitz, R.J., Zilles, K., Rizzolatti, G., Freund H.J. (2001), *Action observation activates premotor and parietal areas in a somatotopic manner: an fMRI study*, in *European Journal of Neurosciences*, 13, 400-404.

6 For further reading: Horoufchin, H., Bzdok, D., Buccino, G., Borghi A.M., Binkofski, F., (2018), *Action and object words are differential anchored in the sensory motor system - A perspective on cognitive embodiment*, in *Scientific Reports*, 8, 1-12.

7 Working notes from a practice conducted by Author Z.

Autobiography is a central practice to enrich the tools available for understanding complexity and critically placing oneself in complex contexts<sup>8</sup>. In recent years, autobiography expanded in the fields of training, research and education. During this pandemic, autobiography can be a central tool for preserving the wellness and discovering one's unique perspective on the difficult contemporary events. Autobiography is possible with children and adults and should be practiced also in distance learning contexts. The dialogue between embodied practices and autobiographic practices is possible specifically in some grounds, which are: play, movement, theatre, adventure, myth, voice/silence. Distance learning force the educational setting to be a domestic one, and, in our opinion, this represents a fruitful context to give autobiography a concrete ground, e.g., with personal objects and spaces. Everyone of us lives in a big whole of narratives which contain us, composed by biological, sociological, cultural, symbolical, mythological layers. Remote learning settings open direct windows on each one's house, where there are many possibilities of discovering pieces of the starting material in our biographies, from which we give meaning and shape to, by exploring the concrete environment around us. Bringing the attention to the hidden story of little things that surround us opens multiple perspectives to look at on every biography. This gives depth to the narrative of self: one will discover, while working on this, his/her interrelation with the narrative of her/his family, roots, environment, and finally, the world. For example:

*I invite every participant of the virtual laboratory to search for a forgotten object, maybe in the bottom of a drawer, on the top of a closet, or in the basement. For some minutes, we will become explorer of our home. Back in video, each participant will have some minutes to tell what s/he has discovered, showing the object in the video, telling its true story. S/he'll try to do this watching the lens camera of his/her computer, something that simulates the look in the eyes for the others, as we trained in previous exercises<sup>9</sup>.*

### **3. An Improvisative Posture: Improvisation and Embodiment**

Improvisation is a central theme for Embodied Pedagogy for three reasons: its role in interactive teaching; its tools for educators and teachers to explore an improvising way of doing; and our personal commitment, as practitioners, to improvise (that is: embracing the unforeseen, welcoming the unexpected contribute, etc.) while teaching. Teaching is a complex system where different kind of knowings are mastered and mobilized by teachers while meeting the unexpected, most of all in interactive and alumni-centered activities. In this framework, Pelletier and Jutras (2008) highlighted that, when perceiving the unexpected event in classroom environment, images rooted in personal experience will emerge, mobilizing knowings strongly embedded in one's biography, and, for this reason, affecting the reflection-in-action. Those images are strongly linked to the emotion awakened by the classroom situation: the teacher's action that will derive from this process will be an embodied one, that is, entangled with sensory and perception processes. Theatrical improvisation training in teacher education has been linked, through studies that measure physiological and EEG parameters, to fostering interpersonal confidence and diminish stress levels before performances (Seppänen et al., 2019; Seppänen et al., 2020), while qualitative studies described teacher-perceived benefits of improvisation training in classroom managing (Pelletier, Jutras 2008) and educational design that involves training improvisation directly in classroom environments (Ben-Horin, 2016). Since we work with teacher and education students in Embodied Pedagogy laboratories, we propose a reflection about neurosciences, embodiment, improvisation and teacher education.

Neurosciences' research in improvisation field showed interesting results in the matter of

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<sup>8</sup> For further reading: Fontana, A., *Metodo autobiografico: fra ricerca e formazione*, For: Rivista per la formazione, 44.45 (2000), 61-67, <http://digital.casalini.it/10.1400/61858>

<sup>9</sup> Working notes from a practice conducted by Fabio Maccioni.

how the brain activates during specific exercises. One of the most extended work is about jazz improvisation (Landau, Limb 2017) and it shows that during even complex improvisation, the brain of the musicians decreases its activation in the areas where higher-order motor planning and cognitive control belong. Those areas are not completely deactivated, but they are used in a more frugal and efficient manner: this phenomenon has been connected to the “flow” status that musicians claim to live when improvising, where self-control is lower, and fear of failure reduces. The medial frontal cortex showed a significant activation during improvisations: this area is responsible of coordination of complex sequential behaviors, and it may be responsible of choosing the appropriate motor sequence to create a cohesive narrative. Other areas activated are the ones linked to expression of self and communication, showing that while improvising musicians can make choices that are autobiographically valuable and efficiently interact with peers. Another recent work by Cogliani (2019) links the perception of the auditive input in musical improvisation to memories that stimulates the narrative of self while musician improvise. If we look at theatrical improvisation, which is the main reference of our research group, we find other stimulating results by neuroscience. In the classical exercise of “the mirror” (Spolin, 1999), proposed in laboratory conditions, a study (Noy et al., 2015) showed significant increase in participant heart rates in the same segments of exercise where subjects referred a sense of “togetherness” with the partner; the same study shows initial evidence of alignment of players’ heart rates. Let’s see how this exercise could be performed in presence:

*I ask the group to divide in couples, then I ask them to decide who is A, who is B. Then I explain: B will be the mirror of A, and s/he will imitate every movement, every little gesture, every expression seen in A. I highlight that the success of the exercise for both A and B is to resemble the mirror effect: for a person that comes by, it should be indistinguishable who is leading the movement. As Viola Spolin annotates, what is crucial in this kind of exercise is “following”. A should make possible to B to be followed, while B should just focus on following. After some minutes, the atmosphere is usually tense and concentrate, and I ask to change the roles. The third steps will be that A and B will do the exercise without anyone of them leading. So, as Spolin underlines, the key of this part of exercise is “follow who follows you”.<sup>10</sup>*

Viola Spolin’s games often involve imitation. Her focus on shifting the attention from one self’s to peers in the actors’ group, her intuitions on how this change of focus to the fellow actor can give glimpse to the self, correlate well with the findings on “mirror neurons” that we’ve already discussed in the previous chapter. What is supposed to happen in these exercises is that the conscious control of one’s action to lead the other gradually soften in order to embrace, in the final step of the exercise (“follow who follows you”), a complete bodily coordination between the two partners, without anyone taking the lead. In Noy et al. (2015), this part is described by participant by the expression “being in the zone”, and it is where they experienced the higher sense of “togetherness”. This exercise is easily replicable in virtual learning settings, standing in front of the camera, starting to imitate teacher’s movements and gesture and then peers’, or it could be done by dividing the group in couples (many video-conferencing software allows creation of subgroups). For the characteristics of this specific exercise, it can be done in presence respecting the physical distance restrictions, which can become an interesting limit to explore.

Another study (Goregliad Fjaellingsdal et al., 2020) correlates behavioral and neural activity measures in experimental conditions of the classical exercise of word-by-word sentence production, where two or more actors produce meaningful sentences one word each, without reaching agreement before. This practice is possible in virtual and physical learning settings, in pairs or in group, and it’s efficient to experience some of the basics of improvisation in an immediate way.

*We’re connected in the videoconferencing platform, it’s the first fifteen minutes. These 27*

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10 Working notes from a practice conducted by Author 1.



students don't know each other, it's April, and we've been in lockdown from a month. After some warming up exercises, I ask them to produce a word-by-word storytelling, without reaching an agreement of who will speak. For this to happen, they'll need to listen carefully to the virtual environment, and try to take their turn to speak when there's silence. To foster the collective listening, I ask them to start again when two or more people speak together; to enhance the acceptance of the mistake and the collective creation, I tell them that, if more than one person speaks together, the person who'll speak next will decide what word pronounced was "right".<sup>11</sup>

It seems that neuroscience is reaching meaningful findings that match what improvisation teachers and practitioners guessed from the beginning of this art: those practices, with their focus on perception, mobilization and creative using of previous knowledge, connection with the others, train a particular kind of way to "be" in the world: an enactive way.

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<sup>11</sup> Working notes from a practice conducted by Author 1.

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