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Embodiment, Somatics and Dance: some possible links

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ABSTRACT – Embodiment, Somatics and Dance: some possible links – This article´s first objective is to approach the fundamentals of the embodied mind theory by George Lakoff and Mark Johnson to discuss the idea of cellular consciousness from the perspective of neurobiology. We also discuss the field of Somatics and its potential applications on dance, highlighting the possible links between somatization and embodiment.
Keywords: **Embodiment. Somatics. Cellular consciousness. Dance.**

RÉSUMÉ – Embodiment, Soma et Danse: quelques liens possibles – Cet article présente, en premier lieu, une révision des aspects centraux de la théorie d'embodiment de George Lakoff et de Mark Johnson. Il discute ensuite l'idée de conscience cellulaire du point de vue de la neurobiologie. Dans un troisième moment, il présente le champs de l'éducation somatique. Enfin, en abordant le champs de la danse, il expose le thème de l'influence somatique dans ce champs et développe un exercice d'identification et de possibilité de liens existants entre la somatisation en danse et l'embodiment.
Mots-clés: **Embodiment. Education Somatique. Conscience cellulaire. Danse.**

RESUMO – *Embodiment* (Corporalização), Soma e Dança: alguns nexos possíveis – Apresenta-se, primeiramente, uma revisão de aspectos centrais da teoria da mente corporificada de George Lakoff e Mark Johnson. Em seguida, discute-se a ideia de consciência celular pela perspectiva da neurobiologia. Em um terceiro momento, apresenta-se o campo da Educação Somática. Por fim, aproximando-se da área da Dança, expõe-se o tema da influência exercida pela somática nessa área e desenvolve-se um exercício de identificação e possibilidade de nexos existentes entre a somatização na dança e a corporalização.
Palavras-chave: **Embodiment. Educação Somática. Consciência celular. Dança.**

P* Revista Brasileira de Estudos da Presença
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Introduction

The experience of experiencing oneself, in stronger intensities, as a perceptive and emotional being, disidentifying oneself with the dominance of the rational being, is a characteristic of a significant part of the artistic making and appreciation. The performing arts constitute a place where the conscious experience of the perceptive life of *being*, *being present*, and *moving* is privileged. It is a consensus that, in these artistic territories, postural and kinesthetic perception[1] forms a foundation for creative approaches, whether in the context of the performance, rehearsal, or training. In the academic production related to performing arts research, there are many studies dedicated to discussing the nuclear presence of proprioceptive and kinesthetic processes in artistic and pedagogical practice.

Considering the wide panorama of the possibilities of performing arts, this article will focus on dance and, specifically, the dance of sensory-perceptual exploration, which does not follow any school of codification of movement and body shape, nor of stylization of expression. However, this article begins with a visit to the territories of Philosophy[2], followed by visits to the territories of Biology and Somatic Education. Finally, crossed territories of Dance will be explored. The aim is to highlight the power of transformation that exists in the sensory-perceptual practice of movement.

Philosophy is brought into the text through an introductory review of key aspects of the theory of embodiment developed by George Lakoff and Mark Johnson. Biology is visited in a discussion located in cellular physiology, focusing on the idea of cellular consciousness, through considerations by Bonnie Brainbridge Cohen (creator of the Body-Mind Centering – BMC method) and scientists who are dedicated to neurobiological studies, among them neurologists Antônio Damásio and Oliver Sacks. Somatic Education is approached based on the conceptualization of *soma* as defined by Thomas Hanna, and advancing to the idea of *somatization*.

I conclude this introduction by explaining why I started the article with Philosophy. Because the philosophy reviewed here, which has its legitimacy and current status recognized in a large part of the scientific-academic environment, can be used as a parameter or as a provocation to reflect on the creative practices of sensory-perceptual exploration of

P* Revista Brasileira de Estudos da Presença
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movement, as well as on its importance and potency. And also because this philosophy, which is based on paradigms emerging from the Cognitive Sciences, helps us to understand that all the practices of sensory-perceptual exploration of movement, and not just the artistic ones, need to continue extrapolating territories, in order to act in a more widespread way in society, since the experiences lived in these practices open new paths for the sensorial-perceptual intelligence, vibrating ahead in time, deepening in the minds-bodies.

In Philosophy territories…

In 1999, in the book *Philosophy in the flesh*, George Lakoff and Mark Johnson, from a meeting of Philosophy with the Cognitive Sciences, organized ideas that challenged central issues of Western philosophy presenting an alternative to the body/mind dualism strongly rooted in it: the theory of the embodiment of human understanding. According to the authors, the first discovery of Cognitive Sciences sounded surprising: the discovery that "most of our thinking is unconscious"[3] (Lakoff; Johnson, 1999, p. 10, our translation), that is, it occurs under consciousness, inaccessible to it.

In Cognitive Sciences, the meaning of the term *cognition* is much broader than that given in most philosophical traditions, in which this term is used exclusively as referring to conceptual or propositional structures. According to Cognitive Sciences, *cognition* designates "[…] any type of mental structure or operation that can be studied in precise terms" (Lakoff; Johnson, 1999, p. 11, our translation).

Lakoff and Johnson's investigations shaped a philosophy of mind that can be summarized in three sentences that reflect the crucial findings of Cognitive Sciences: "The mind is inherently embodied. Thought is mostly unconscious. Abstract concepts are largely metaphorical" (1999, p. 3, our translation). Based on these premises, human reason is not disembodied, it is not separated from the flesh, being unconditionally linked to peculiarities of the organic functioning in interaction with the physical and cultural environment. The human being's sense of reality does not depend only on their rational capacity, but mainly on unconscious cognitive processes developed through the being's sensory-perceptual interaction with the

P* Revista Brasileira de Estudos da Presença
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environment. Therefore, the concepts, the understandings that guide us in life, are embodied.

Lakoff and Johnson present three levels of embodiment that are always present, with no independence between them: the neural level, the level of the cognitive unconscious, and the level of the phenomenological conscious experience. The neural level is seen as a *physical* level, because the elements that act in it, such as glial cells, are directly linked to phenomena of the atomic instance, such as ion channels. The metaphorical conceptions that help scientists understand this level of embodiment are abstractions linked to the idea of circuits (they need to metaphorize in order to try to understand the microscopic physical phenomena they study). The level of the cognitive unconscious concerns all cognitive operations that take place under, and are inaccessible to, the consciousness. It encompasses operations of different complexities, such as: basic level categorizations involving temporal and spatial understandings; prototypes; schemes of images, vowels, names, verbs. The level of conscious experience is phenomenological, being the only one accessible to the consciousness. It contains everything we can experience, such as: all types of thinking (including mathematical reasoning), the use of language, interaction with other people or the environment, our emotional states (such as feeling in love), emotional states (recognizing oneself in panic, seeing oneself in tears, etc.) and sensory-perceptual states (being aware of the movement of the feet when walking, perceiving a chill, feeling the watery eyes, etc.).

Lakoff and Johnson use the iceberg metaphor to define the size of phenomenological consciousness when compared to the cognitive unconscious. Consciousness is the tip of the iceberg, which is out of the water, and the cognitive unconscious is the huge submerged portion of the iceberg. The submerged part "configures and structures all conscious thought" (Lakoff; Johnson, 1999, p. 13, our translation). And, complementing the iceberg metaphor, Lakoff and Johnson use the metaphor of the invisible hand: the cognitive unconscious is the hidden hand that "shapes the way we conceptualize all aspects of our experience" (p. 13, our translation).

> The very structure of reason comes from details of our embodiment. The same neural and cognitive mechanisms that allow us to perceive and move, also create our conceptual systems and modes of reason. Therefore, to

Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
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> understand the reason, we need to understand the details of our visual system, our movement system and the general mechanisms of neural connection (Lakoff; Johnson, 1999, p. 4, our translation).

The embodiment of concepts is initiated through the development of metaphors or basic-level metaphorical schemes by the cognitive unconscious. Below, basic-level metaphors referring to the metaphorization of time will be presented. The metaphorical scheme in Chart 1 is presented by Lakoff and Johnson as the most basic metaphorization of time: an observer in the present facing the future ahead and, behind him, the past. In this scheme, we see that the cognitive unconscious refers to the register of space and spatial memory to delimit temporal discernments:

The observer's location	→	The present
The space in front of the observer	→	The future
The space behind the observer	→	The past

Chart 1 – Metaphor of orientation in time. Source: Lakoff and Johnson (1999, p. 140).

The place observed up front is not now. To be there, the observer will have to move. At the linguistic level, this unconscious metaphorical scheme is reflected in spoken metaphors such as: 'Let's leave it all behind and move on', 'Let's look ahead and see the future', 'She has a great future ahead'. Let's look at the second scheme:

Objects	→	Time
The movement of objects passed before the observer	→	The 'passage' of time

Chart 2 – Metaphor of time in motion. Source: Lakoff and Johnson (1999, p. 141).

Chart 2 shows the meaning of moving objects that pass by the observer. And now let's see, in Chart 3, the combination of the two schemes presented:

The observer's location	→	The present
The space in front of the observer	→	The future
The space behind the observer	→	The past
Objects	→	Time
The movement of objects passed before the observer	→	The 'passage' of time

Chart 3 – Combination of the Metaphor of orientation in time with the Metaphor of time in motion. Source: Lakoff and Johnson (1999, p. 142).

In this composite scheme, we have situations such as: something moves, coming from afar; that something is in front of the observer, coming towards them; when approaching, it ends up passing by the observer, falling behind the observer's focus of vision. This scheme is the basis for the following metaphors we use on a daily basis: 'Time is flying',

P* Revista Brasileira de Estudos da Presença
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'Many transformations are coming for us', 'Harvest time has come', 'The deadline is approaching'. Let's see below, in Chart 4, the diagram in which there is a moving observer:

Locations in the observer's movement path	→	Time
The observer's movement	→	The 'passage' of time
The distance traveled by the observer	→	The amount of time spent

Chart 4 – Metaphor of the observer in motion. Source: Lakoff and Johnson (1999, p. 146).

This metaphor or metaphorical scheme can also be called a metaphor of the landscape of time. In it, the observer is dynamic, and each location in its path is a time. Through this scheme, time is conceptualized as locations and pieces of a spatial path in a landscape. In the next and last chart, Chart 5, we have another composite scheme: the combination of the scheme in Chart 1 with the scheme in Chart 4:

The observer's location	→	The present
The space in front of the observer	→	The future
The space behind the observer	→	The past
Locations in the observer's movement path	→	Time
The observer's movement	→	The 'passage' of time
The distance traveled by the observer	→	The amount of time spent

Chart 5 – Combination of the Metaphor of orientation in time with the Metaphor of time in motion. Source: Lakoff and Johnson (1999, p. 146).

This combination generates the possibility of measuring, delimiting time, which will be equivalent to an extension – long or short. The observer performs an action within an assigned time interval. Examples of metaphors at the linguistic level that emerge from this unconscious metaphorical scheme: 'It won't be possible, time is short', 'We are going to stay here for a long time, we better get used to it', 'The lecture passed in a snap', 'We are approaching Christmas', 'He will have his diploma within three years'.

The metaphors shown in the charts are basic-level temporal metaphors. Other examples of basic metaphors are the cause-effect (event-cause) metaphors. The metaphors' degree of complexity increases as they combine, and there are quite complex metaphors. With increasing complexity, we embody more and more intricate understandings, so that even difficult philosophical concepts are based on embodied schemes: "The concepts that govern our thinking are not just contents of our intellect" (Lakoff; Johnson, 1997, p. 124, our translation). Throughout life we will continue to embody understandings:

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
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> When we grow up, we do not lose these embodied understandings or our bodily manners of generating understandings and reflections. Instead, we appropriate them and recruit them in the possibilities of our thinking, as in our most refined, abstract modes of understanding and reflecting (Johnson, 2007, p. 51, our translation).

Johnson (2015), in a more recent article, written individually, uses the term *biofunctional understanding*, coined in 1980 by Asghar Iran-Nejad, to refer to this unconscious metaphorical cognition that generates meanings from the registers of our functional physical relations with the physical and cultural environment in which we live. This term helps us to remember something that Johnson emphasizes in the book *The meaning of the body* (2007): that we are not the only beings on planet Earth to have cognition; that, on the contrary, we are evolutionarily linked to a wide variety of animal cognitions. Johnson argues that it is very important that we look for appropriate names for the phenomena that constitute the embodiment; gradually reviewing the linguistic uses we make of the terms *body* and *mind*, because, commonly, the way of speaking practiced still approaches body and mind as different things. According to Johnson, just by mentioning the word *body* or the word *mind*, in certain semantic contexts, we are already reinforcing the false body/mind dualism.

In the opposite direction of this dualism, the theory of the metaphorical unconscious points to a dual path of interference between unconscious cognitive processes and conscious cognition. This unveils the illusory condition of objectivism, the fallacy of absolute truth (Lakoff; Johnson, 2002). If the perceptive and emotional experience, which is also a cultural experience, is the basis of cognitive formulations, no presupposition of reason can impose itself on the senses (understandings, meanings) brought by this experience. In conceiving the mind as part of the body, the theory of embodiment goes in the opposite direction from that taken by different philosophical traditions that are still influential today. As emphasized by Lakoff and Johnson (1999), the embodiment is nuclearly in conflict with the thinking of Noam Chomsky (1928-), Gottlob Frege (1848-1925), Immanuel Kant (1724-1804), and René Descartes (1596-1650), among others.

Embodiment also goes against less old conceptions, such as: post-structuralist conceptions that radicalize the historical contingency,

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
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arbitrariness and the relativization of understanding; phenomenological conceptions that consider introspection as a complete key to understanding experiences; and computational concepts, according to which the mind is like computer software that generates understandings by transforming symbols, which have no meanings, into semantic symbols, through data processing that follows predefined rules. In the theory of embodied understanding, the conception of meanings develops from unconscious operations of categorization of experiences carried out in synergy with the physical and cultural environment. On the other hand, Lakoff and Johnson emphasize that there were philosophers who traced embodiment phenomena, such as John Dewey (1859-1952) and Merleau-Ponty (1908-1961), but who, due to lacking the support of methodologies that could empirically validate their conceptions, had no way of strongly challenging the mistaken character of the mind/body dualism.

In this context, it is worth recalling the premises of the metaphysical philosophy of the mind developed by Descartes, since it became a matrix for several other subsequent metaphysics: "The mind can know its own ideas with absolute certainty. All thought is conscious. The structure of the mind is directly accessible to itself. The mind is disembodied" (Descartes apud Lakoff; Johnson, 1999, p. 392, our translation). These ideas by Descartes generated "[…] a new metaphorical view of the mind as an act of representing, in some internal domain, the objects existing in the 'external' world" (Lakoff; Johnson, 1999, p. 391, our translation).

Christine Greiner and Helena Katz (2001), following the philosophy of Descartes, lead us back in time to remember the advent of the linear space of perspective, which developed during the Italian Renaissance, in the 15th century, and, from that perspective, exemplify how connections of meaning are always present in the environment, crossing different phenomena and unfolding in time. In the perspective painting done by Filippo Brunelleschi (1377-1446), the flat verticality of space (typical of paintings from medieval times) is abandoned. Space becomes horizontal and becomes infinite through the vanishing point. As addressed by Greiner and Katz, the spatial perspective present in this type of painting placed the observer in front of a landscape as if they were observing it through a window, and this condition, made a habit, contributed to the development of a psychological disposition: that of the outer self – the *self* that observes

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

the world being outside of it, and that observes the body there in the world, not identifying with that body. In this context, the body is a visual obstacle in the external landscape observed, and a conceptual obstacle that needs to be removed from the way.

Still considering Greiner and Katz (2001), when phenomenology started to gain strength, this concept of incommunicable inside/outside started to be destabilized in Philosophy. The phenomenological view (from Husserl to Merleau-Ponty, including Heidegger) of the human being – a phenomenon that lives in a circumstantial world, in which there are no objective truths – shakes the inside/outside demarcation, causes displacements, and brings corporeality and human flesh into focus. However, traditional phenomenology did not focus on the studies of the unconscious, nor on the novelties of neurophysiology, and, in this context, philosophers of pragmatism played an important role, such as William James (1842-1910), who proposed a psychology founded on experience. With this, "[…] the conception that knowledge processes occur from interactions between body and environment gained a new strength" (Greiner; Katz, 2001, p. 70).

When John Dewey argued that there is a continuity (of which ruptures and resumes are part) between the organism's relational experience with the world and the judgments of circumstances by the consciousness, he also participated in the reconfiguration of the ideas of *inside* and *outside*. As Cognitive Sciences advanced in the scientific environment and reverberated in philosophy, the inside/outside separation was completely destabilized. In this context, evolutionism contributed strongly in showing that life, in all living beings, including humans, is fundamentally an exchange between organism and environment.

In Biology territories…

In Biology, there is a delimitation established between *inside* and *outside* that consists in the primordial evolutive condition for the emergence and maintenance of life: the delimitation established by the cellular membrane. Among the most important properties of the membrane is its crossability, that is, its ability to perform interaction between inside and outside. The membrane exists only because the environment exists. As

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
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exposed by Clélia Ferraz Pereira de Queiroz (2013, p. 30): "Membranes grow homomorphically by addition and insertion of constitutive tissue in pre-existing membranes".

Separating the inside of the cell from the outside, the membrane, compared to the entire cell volume, is extremely thin. In multicellular organisms, it is also the delimitation that separates the cell from all the others with which it lives collectively. Formed by a bilayer of lipids, the membrane contours the boundaries of the cell as if it were its skin, outlining a shape. According to Lauralee Sherwood (2011), lipids vibrate, rotate and move, exchanging places with one another millions of times per second.

The movements existing inside the cell are necessary for the maintenance of cell life, because it is through movements that the interior of the cell relates to the external environment, maintaining its balance and survival. Known as *homeostasis*, this balance consists in a profusion of events inherent in exchanges with the environment: it is responding to situations to which the environment requires a response; it is responding to internal needs. Metabolic processes continually occur to enable homeostatic adjustments. This is a complex organic synergy, a great interplay of countless cellular operations caused by different circumstances.

Managing the continuous exchanges with the environment, necessary for the maintenance of homeostasis, the membrane intermediates all the movement of substances entering and leaving the cell – its permeability is highly intelligent, and this intelligence is the result of billions of years of evolution. As explained by Queiroz (2013, p. 29), based on Jesper Hoffmeyer: "[…] living organisms took billions of years for the open borders of indeterminate organisms to be replaced by the regulatory action of membranes".

According to Sherwood, the delimitation and communication function carried out by the membrane is its primary function, and can be subdivided into more specific functions, among which it is worth noting: "Integrate the cell with other cells, and allow the cell to react to information and changes in the environment, participating in the communication between cells" (Sherwood, 2011, p. 53). Cellular communicability depends on the excitability of the membrane: the more the membrane is excitable,

P* Revista Brasileira de Estudos da Presença
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the faster it is able to respond to stimuli, the more the cell is an efficient communicator. The cellular capacity to react to environmental stimuli is therefore crucial, both for the functioning of the cell and for its coexistence with other cells, and the cellular coexistence is a primary condition for cellular intelligence to evolve toward organic intelligence and organic systems.

According to Bonnie Bainbridge Cohen (2015), as exposed in her book on the *Body-Mind Centering* (BMC) method[4], membranes are the first sensory receptors, because, with constant multidirectional mobility of shrinkage/expansion, occurred through numerous foldings and unfoldings, they register the movement of fluids that pass through them, the rhythm of this movement and, also, the pressure that the fluids exert on their internal and external walls. By this understanding, it is clear that cells, like us, have a *tactile* relation with the environment, and respond to it intelligently. Cohen talks about cell interconnection feedback:

> For a cell community to survive, it must have a feedback mechanism for the interconnection of each cell to all other cells. Therefore, each cell has a sense of itself and communicates with all other cells. […] Cells that have poor sensory feedback have more difficulty coordinating their rhythm with other cells. Cells that are conscious of themselves are better able to communicate with their neighboring cells. The more the cells within us become aware of themselves, the greater the resonance between cells, inner balance and self-knowledge (Cohen, 2015, p. 7-8).

According to contemporary neurobiology, the detailed understanding of what cellular consciousness is may be the key to understanding the human mind. Neurologists Oliver Sacks and Antônio Damásio (Sacks et al., 2015), in a text written with other scientists, relate the excitability property of the cell membrane of some types of cells to the origins of the mind: a high excitability that consists in a unusual cellular capacity to perform exchanges at very high speed, on a scale of milliseconds. It is the process of recognizing stimuli and responding to those stimuli exceptionally quickly. The specific types of cells possessing this capacity are: sensory stimulus receptor cells, neurons and muscle cells. According to the authors, an in-depth understanding that the dynamics of the interchange carried out in the membrane occurs in a variable way in the different types of cells may be the key for us to come to understand the *primitive self-consciousness*, also

Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
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mentioned by the authors as *spark of sentience*. The ideas presented in the text, as the authors themselves affirm, are strongly rooted in a theory that is already well established – the Theory of Evolution –, but which has been little explored. In the words of the authors:

> This approach directs the search for the properties underlying consciousness at the protozoan level (a single-celled organism), in order to identify, at the cellular level, the fundamental mechanisms that, when amplified in a complex nervous system, originate the properties commonly referred to as 'mind.' The unanswered question is: What are the characteristics of living cells that ultimately consist with the various high-level psychological phenomena; phenomena that apparently only exist in certain animal organisms? (Sacks et al., 2015, our translation).

In their conclusions, the authors emphasize that the activity of the numerous excitable cells must be well synchronized for the organism to function in a coherent way, that is, for the organic behavior to be favorable to the harmonization and preservation of the organism. In evolutive terms, this would be an essential condition for the emergence of the highest level of consciousness. The authors also mention that animal cells are not the only ones to respond to environmental stimuli, since plant cells also have this capacity. However, the high excitability of neurons in the animals' nervous system surpasses that capacity, and concerns an unusual way of recruiting other excitable cells, leading to a behavior in the organism that aims at restoring biological equanimity (Sacks et al., 2015).

Biologists Humberto Maturana and Francisco Varela (2003), in their Autopoietic Theory, argue that the emergence of life was due to the capacity of self-management carried out by cells in the condition of open systems – which they called *autopoiesis*. *Selfless minds* is an expression used by Varela and Maturana that directly points to the idea that the organisms' self-management capacity is equivalent to that which, in more complex organisms, is called *mind*.

These studies reinforce the understanding that the body-mind is the result of microscopic consciousnesses. Each microscopic consciousness is related to microscopic movements. This reminds us that our bodily movement is the result not only of decisions, feelings, perceptions, etc., but also of a series of events that occurred at the physiological level. As argued by Queiroz (2013, p. 27): "[…] movements can be treated as a way to

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
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advance in survival… this view on movements helps to rethink them as protagonists of cognitive forces in the organism".

In soma territories…

Philosopher Alva Nöe, right on the first page of his book *Action in Perception*, registers: "[…] perceiving is a manner of acting […] it is not something that happens to us, or in us. It is something that we do" (Nöe, 2006, p. 1, our translation). This conception of perception can be used to illustrate the center of the epistemology of Somatic Education: action as perceptive listening, not as an end.

Somatic Education is configured as a field of knowledge dedicated to the exploration of the neuromotor repatterning phenomenon through perceptual/sensitive experience of movement (including postural movements, visceral movements such as breathing, and passive or assisted movements), through pedagogical processes of body awareness raising that value self-knowledge, following a path that values subjectivity and seeks greater well-being[5]. The movement is experienced not only in bodily movements through space, but also in micro movements of postural adjustments and in movements caused by touch. In some somatic proposals, imagination and sound are also explored as somatic experiences.

Débora Bolsanello (2010, p. 18) lists some bodily proposals that she considers to be part of the somatic field: "Bartenieff, Técnica de Alexander, Feldenkrais, Antiginástica, Eutonia, Ginástica Holística, *Continuum*, *Body-Mind Centering*, Cadeias Musculares G.D.S., Somaritmo, Pilates, Sistema Postural Seijas, and GYROTONIC". Regarding the Brazilian proposals, it is necessary to emphasize the Klaus Vianna Method and the Awareness of Movement, by Angel Vianna. Eloísa Domenici (2010) also mentions the work developed by José Antônio Lima.

The process of configuring Somatic Education, as a field of knowledge, was initiated by philosopher and professor Thomas Hanna (1928–1990), in the United States (Association…, 2019). In his theory, Hanna developed a new conceptualization for the old term *soma*. In his book *Bodies in revolt*, published in 1970, he presents soma as the trump of evolution – that which human beings have in common with all other living beings – organic wisdom capable of self-regulation. In the condition of

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
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experience of human consciousness, the soma is the body when experienced by the sensitivity of movement, in contrast to the body as something that is observed, analyzed and measured by means of objective parameters: "'Soma' does not mean 'body'; it means 'I, the corporal being' […] Soma is type of life, an organic being that you are right now, in this place where you are" (Hanna, 1970, p. 35, our translation). Cohen (2015) tells in her book that, during the 1960s, Hanna was already talking about soma and spreading his ideas.

A few years after the publication of *Bodies in Revolt*, Hanna coined the term *Somatics*, which came to be used to name the field of knowledge aimed at investigating somatic experience and its consequences. In Portuguese, the translation of this term became *Somatic Education*. *Somatics* was also the name given to the first periodical publication focused on the phenomena studied in this field, created by Hanna in 1976 (Cohen, 2015). In his article *What is Somatics?,* published posthumously, Hanna (1995a) again conceptualizes soma, referring to it as something perceived from the perspective of bodily interiority:

> When a human being is observed from an external perspective – that is, from the point of view of the third person in the discourse – the phenomenon perceived is the human body. However, when this same human being is observed from the point of view of the first person of the discourse, that is, through one's own proprioceptive sensations, what is perceived is a categorically different phenomenon: the human soma (Hanna, 1995a, p. 341, our translation).

As can be observed, the somatic experience is founded on the inversion of the concealment of perception, that is, instead of focusing on something that happens in the environment, experiencing our interaction with the environment while the perception hiddenly performs its constant work, we focus on the functioning of the sensorimotor perception, trying to align or tune the attentive consciousness to that perception. Thus, our sixth sense – the gravitational sense – is at the core of somatic investigation.

This can give the impression that the somatic experience is characterized by the person's encounter with herself/himself. However, it is an experience of sensitive connection with oneself, with the other and with the environment, since, when sensitized and attuned to our membranes, we feel more intensely that we are crossed by the environment; that we are part

Revista Brasileira de Estudos da Presença
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of something bigger: society, nature, the world, time, mystery. This means that the soma can be explored by the consciousness in the interaction with the other and with the environment. Therefore, being in a somatic state is not being alienated in oneself, it is being in an intense state (which does not mean tense) of perceptive attention, which can be of two types: focused and spread, both of which can probe both the inside and the outside (considering the skin as the inside-outside border). The soma, then, encompasses first-person perception without excluding third-person perception:

> The soma has a double talent: it can feel its own individual functions through first-person perception, and it can perceive external structures and objective situations through third-person perception. It has the distinct talent of having two modes of perception (Hanna, 1995a, p. 346, our translation).

Regarding the interdisciplinary and transdisciplinary nature of Somatic Education, it is noted that there is dialogue with the Arts, Philosophy, Physiotherapy, Biology, and other areas. Among the ideas and theories that influenced Hanna, we have: the philosophies of Merleau-Ponty, Nietzsche, Camus, Cassirer, Marx, Kierkegaard and Kant; Darwin's Theory of Evolution; Freud's Psychoanalytic Theory; Piaget's Theory of Development; Reich's Theory of Bioenergetics; and theories of Ethology (Hanna, 1970). As contextualized by Martha Eddy, this investigative journey experienced by Hanna was immersed in a philosophical environment that broke with old paradigms, valuing the perceptual experience:

> In the twentieth century, as rationalism was influenced by existentialism and phenomenology, there was, in part of academic and school cultures, a gradual shift in theoretical supports toward experiential learning and sensory research. These changes were catapulted by the theories of Dewey, Merleau-Ponty and Whitehead (Eddy, 2009, p. 6, our translation).

In the academic milieu, since the proposition of the somatic field, theoretical exercises that relate somatic experiences to phenomenological reflections are common, such as Elisabeth Behnke's texts. In some of these discussions, we find the term 'embodiment.' However, the exercise of relating the soma to embodiment, considering it as a phenomenon at physical (cellular) and unconscious level, is more rare.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

With regard to the scope of the somatic epistemological and terminological proposal, it is interesting to note that, as an American event, it had a different influence in different places around the world. In Brazil, there seems to have been an unobstructed reception to the epistemology of Somatic Education, as well as to its terminology, although this does not mean that there are no people in Brazil who do not identify with Hanna's proposal. Even in the United States, there are discourses against the understanding that the phenomena related by somatic epistemology can, in fact, be configured as a field of knowledge. In relation to France, it is possible to determine that the term *education somatique* (somatic education) is becoming more common in the texts of the area, sometimes replacing the term *analyse du mouvement* (analysis of movement), which is the most used to name the field of the pedagogical practices for sensory-perceptual investigation of the movement. In texts by Hubert Godard, Isabelle Ginot and Christine Roquet, among others, we can trace the use of such terminology.

The history of the emergence of Somatic Education predates the organization of the somatic field, and leads us to the varied gymnastics of body awareness and expressiveness widely practiced in Europe and the United States at the turn of the 19th century to the 20th century (Mullan 2016; Souza, 2011). As explained by Ciane Fernandes (2015, p. 11), "[…] the origin of somatics lies in the revolt against Cartesian dualism from the European gymnastics movement of the late 19th century, with the work of François Delsarte, Emile Jaques-Dalcroze and Bess Mensendieck". This excerpt from Fernandes combines the two main types of expressive gymnastics practiced at the time: the Delsartist pantomime gymnastics, *Harmonic Gymnastics*,*Gymnastics*, and the rhythmic gymnastics, such as*Eurhythmics*[6] by Jaques-Dalcroze.

Among the generations of Delsartist artists-teachers, it is worth emphasizing the importance of the work of James Steele MacKaye in the United States (USA) (1842-1894) and of Genevieve Stebbins (1857-1934) in the USA and Europe, since the American Delsartist movement was a cultural movement that had a significant impact on the European continent (Thomas, 1995; Ruyter, 1999; Souza, 2012). MacKaye was the one who systematized the principles of the analysis of gestural expressiveness developed by Delsarte, organizing them in a format of gymnastic and

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

pantomimic exercises. Stebbins, who had been his student, was a teacher of Mensendieck (1864-1958) and Hede Kallmeyer (1881-1976) – the most influential names in German *Gymnastic* (Hanna, 1995b; Mullan, 2016) – and is considered by specialists in dance history as a forerunner of the *modern dance* of the USA, as she developed a practice of spiral movements as an intermediate between pantomimic poses or attitudes (Ruyter, 1999; Thomas, 1995).

It is possible to trace the significant relations between these expressive gymnastics and part of the pioneering specifically somatic approaches, with a genealogy linking these two worlds, examples of which are the life trajectories of Elsa Gindler (1885–1961), the creator of *Holistic Gymnastics*, and of Gerda Alexander (1908-1994), the creator of *Eutony* (Souza, 2016). In addition, it is important to note that the genealogical framework of Somatic Education has a wide matrix, comprising several names that have no relation to pantomimic and rhythmic gymnastics, as is the case, for example, of Mathias Alexander (1869-1955), of Mabel Todd (1880-1956) and Moshe Feldenkrais (1904-1984).

The use of imagery metaphors as causes of changes in sensorimotor patterns is an important aspect in the somatic field, and it can be considered that Todd was an important pioneer in this application. Her research is directly linked to the *Ideokinesis* method, systematized by her student Lulu Sweigard. Similarly to several of the studies developed by somatic pioneers, Todd's studies were based on the relations between phylogenesis and ontogenesis (Todd, 1937). Among the questions she asked herself were issues such as: 'In what way occurred the association of the curves and rectifications of the spine so that the human species was able to overcome the force of gravity?'; 'What is the relation between being a biped and the motor coordination in precise movements of observation and manipulation?'; 'How do the lines that operate continuously on the skeleton act?'.

According to Eddy (2009), the current somatic field has branched into three – *somatic psychology, somatic bodywork* and *somatic movement* – and its general scope can be grouped and represented in the expression *Somatic Movement Education and Therapy* (SME&T), a more detailed name than the term proposed by Hanna. The contemporary history of Somatic Education brings new characters to the scene, such as the *International*

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Somatic Movement Education and Therapy Association (ISMETA), in a context of expansion.

As noted by Cohen (2015), the tools of somatic work are: movement, touch, visualization and sound, and it is worth recalling that the term *movement*, in this context, includes postural adjustment movements, assisted movements, and respiratory movements. These tools can be used individually or in pairs, trios, groups. They can be worked alone (only one tool) or combined (more than one tool at the same time). The use of spoken guidance, by the conductor of the somatic experience, can be continued, constantly stimulating the development of the experience, or more leisurely, and it can also happen only as an instruction prior to the experience.

Somatic experiences can occur both as experiences *received* by the hands of a professional in the field, through touch and manipulation, and as experiences carried out (practical), whether in the context of an ordered somatic protocol or in the context of a somatic exploration, something more open. The practices are usually guided by a professional in the field, but not necessarily, as they can also be experienced autonomously. By moving somatically, the person is experiencing movement as a means, not as an end. There is no goal to be achieved: the movement does not happen because I need to get something or get somewhere, it happens because the goal is to perceive. The somatic techniques used can be movement, sound, visualization and touch/manipulation.

Regarding the expression *somatic exploration*, it is worth contextualizing that the word *exploration* is here referred to in a sense that is consistent with Nöe's view regarding perception (perceiving is acting), and with understandings presented by cognitive development scientist Esther Thelen, as presented by Queiroz (2013, p. 100): "Exploration are movements that generate information about who perceives and what is perceived […] Each exploration is a process of testing and selecting more information […] there is no separation between action and perception in the exploration".

Most somatic proposals deal with body contents that have a form and that are potentially palpable, which includes both the body parts that we can touch and the parts that we cannot touch directly, but that are

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

potentially subject to touch. Examples: muscles, bones, ligaments, skin, lung. These somatic studies can be considered studies in *experimental anatomy* or *functional anatomy*, terms used by many specialists in the field in their bibliographic productions, as in the subtitle of a book by Irene Dowd: *Taking root to fly: articles on functional anatomy by Irene Dowd* (1981); and in the subtitle of Cohen's book: *Sensing, feeling, and action: the experimental anatomy of Body-Mind Centering* (1993).

However, some somatic proposals go beyond the territories of palpable body contents, aiming to access microscopic territories. I think we could call these approaches *experiential physiology*. In *Bartenieff 'Fundamentals* we have an example of this type of exploration, as Irmgard Bartenieff developed procedures that aim to tune phenomenological consciousness with respiratory cellular consciousness. This exploration was called *cellular respiration*, and Bartenieff had Cohen's collaboration during the conception of this proposal (Hackney, 2002). In this study, understanding the function of the cell membrane is a crucial element, and there is an analogy between it and the skin. Visualization and touch are especially strategic as didactic choices.

To refer to somatic experiences experienced through movement, Cohen (2015) started to use the term *somatization*, giving this word a semantic use different from that given to it in Medicine and Psychology:

> I used this term 'somatization' to directly engage the kinesthetic experience, […] Through somatization the body's cells are informing the brain as much as the brain is informing the cells. I derived this word 'somatization' from the word 'soma' as used by Thomas Hanna (Cohen, 1993, p. 1, our translation).

Despite the conceptual delimitation that Cohen originally gave to the term *somatization*, today it is noted that its use is virtually unrestricted to refer to any somatic experience, and not just to those that occur through movement.

In crossed Dance territories…

In dance territories (and not just in academic territories), the somatic field was significantly active in the emergence of a new aesthetic-corporal paradigm: sensorimotor subjectivity and its perceptual postural and kinesthetic data as elements of pedagogical work and motivation for

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

creation. Domenicci (2010), when addressing the transformations that Somatic Education caused in dance, points to a paradigmatic change: from the technicist paradigm of mechanical repetition, we move on to the systemic or dynamicalist paradigm, in which self-perception is a fundamental experience. As emphasized by Márcia Strazzacappa Hernandez (2000), somatic education, when introduced into classrooms and dance rehearsals, is an instrument for changing the quality of the work carried out, being much more than procedures for self-care and injury prevention. It is clear that, although somatics has often entered dance classrooms through the therapeutic door, it has now spread to the wooden floor and into the air; it has already become a dance gene.

According to Sylvie Fortin (2011), it was from the early 1970s that Somatic Education began to enter dance territories. The presence and importance of the somatic field in dance became so significant that the term *Somatic Education* was even listed in the Larousse Dance Dictionary, in its second edition: "Disciplinary field that emerges from a set of methods aimed at education as to the awareness of the body in motion in space" (Larousse, 2007, p. 210 apud Fortin, 2011, p. 27). Therefore, it seems valid that we ask ourselves if it would not be interesting to use a specific term to refer to the dance that is being explored and performed within somatic paradigms. I think the expression *somatic dance* is a good possibility; a well-contextualized name to refer to the 'sensory-perceptual exploration dance that does not follow any school of codification of movement and body form, nor of stylization of expression.' The emergence of somatic dance in the dance territories brought a new color palette to pedagogical studies, as well as to the practice of creation in dance, affecting how teachers work, how artists develop their creative processes, and how scholars theorize about dance.

In part, the entry of Somatic Education in dance was due to the fact that its genealogy contains direct links to expressive practices of movement, which means that in some somatic practices there was already a dynamic thought of dance. This was one of the causes of the complete interplay that occurred. As Domenici (2010) reminds us, Anna Halprin (1920-), from the 1950s, in her classes and creative processes, worked with very different activities from those that were commonly practiced in dance technique classes. She developed a work close to somatic propositions. An example of

Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

a proposal she worked on was exploring the movements of each joint in the body. Experiencing these propositions, an important generation of dancers was marked by Halprin's work, with some of them coming to participate in *Judson Church*.

Steve Paxton (1939-) and several important names of the Improvisation Contact followed and instigated the development of BMC. The bodily pedagogical approach subsequently organized by Paxton – *Material for the Spine* – is based on the foundations of Somatic Education. Spine awareness is treated by Paxton as *dorsal awareness* intrinsically connected with the peripheries, which is quite powerful in helping to develop the three-dimensionality of attention, of the intention of movement and its initiation. This generates transformations in sensorimotor organizations, contributing significantly to the evolution of body kinetic integration.

In Brazil, the works of Klauss Vianna (1928-1992) and Angel Vianna (1928-), by focusing on the expressive power of conscious movement, enriched the environments of dance and theater, as well as hybrids between these two arts. These works, which were often mentioned as *body expression*, are discussed by several Brazilian authors, such as Letícia Teixeira, Jussara Miller, Neide Neves, Lela Queiroz and Enamar Ramos.

In dance territories, the somatic exploration tools – movement, touch, visualization and sound – are experimented with in proposals naturally contaminated by the dance *background*. In my work in dance teaching, the enunciation that I use to suggest uses of somatic tools to students is more interesting to me in its verbal character than in the noun one, because I think that, when conceived as verbs, these tools help us even more to practice the understanding that perception is action. I believe that, when instead of saying 'look for a movement that investigates…', I say 'move investigating…', I help the persons to better practice the understanding that the movement that they perform is them, and not something that they deal with. This is a different understanding from other understandings that are already well embodied in us, such as the understanding that movement is something that happens around us, something that we analyze rationally, something that we observe, etc.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

In somatic dance explorations, somatic tools are employed in different ways, being combined or not (examples: moving; touching and moving at the same time; visualizing and being touched at the same time; moving being touched by someone; emitting sound; emitting sound while touching). Experimental anatomy explorations are frequent, both in touch studies and in dynamic studies of bone shapes, volumes, weights and their skeletal connections. Muscle anatomy can also be explored, although studies of muscle tonic sensitivity are more common than muscle anatomical studies. The musculoskeletal body-mind can be explored in chains of movement and in ontogenetic patterns. Different touch qualities can be used to stimulate changes in the tensionability scale of the skin, muscles, viscera (although tonic exploration focused on organs is less common). The tensionability scale is also frequently explored in studies that focus on relations between activity and passivity in movement. In this context, relaxation studies are very important, since they are strategic for reaching very low levels of tonus, which makes it possible to identify tonic contrasts. Exploratory manipulation studies are equally important, through activities in pairs or groups, in which a person, when being manipulated, can experience passive movement in all its sensitivity power. Breathing is also a territory commonly explored in the somatic practices of the dance world, especially with regard to the alternation between expansive movement and contracting movement. Simultaneously to other somatic explorations, respiratory explorations may involve jumping, joint dismounting, falls etc. Ligaments can be stimulated through manipulations that pull subsequent body parts in opposite directions, causing the appearance or recognition of spaces in the joints, or through studies of gravitational response between letting go and pushing, and which can also involve projecting and reaching out. The somatic explorations that launch us in search of the harmony between attentive and cellular consciousness (experiential physiology) bring to somatic dance something very subtle, although very powerful: the experience of singular sensory-perceptive states and their poetic potential.

The innumerable somatizations in dance open doors to a multiplicity of possible other somatizations. In the creative work of adapting exercises that are already known, of renewing stages, of merging objectives, we are, finally, guided somatically toward the experimentation of procedures. For

Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

this to happen, it is essential that there is knowledge about what somatic themes are for studying the expressiveness of movement, and how they can combine. Examples of themes: passivity and activity in the movement's tonicity; relation between axis, antigravitational action and bone vector projection; contrasts and closeness between alignment, balance and imbalance; breathing as irradiation of kinetic energy; relations between rooting and levitation.

When reflecting on the value of somatizations in dance training and creation, it is worth considering Lakoff and Johnson's theory of the metaphorical cognitive unconscious, as it helps us better understand that the content of learning, in somatic explorations, is the very perception of movement, and not a dance step that is intended to be learned; it is perceptual listening as action, and not as passivity or pure reception; it is a potent novelty in embodiment. In this perspective, movement is no longer just a motor response, but also a stimulus. In the computational paradigm, which followed the body-machine paradigm, movements are mere motor activations commanded by the brain: perception is only reception (input), and movement is only response (output). The brain receives environmental information through sensory data (input data), works on that data in the perceptual processing, and then decides what to do, sending movement commands to the *body* (output data). However, in the embodiment paradigm, movement is not just output or output data, it is input, it is input data, it enables cognition, in conjunction with the brain. As Queiroz (2006, p. 14) summarizes: "the movements that the body makes actively participate in the construction of cognition".

Thus, it is important to mention that the somatic gene acting in the dancing organism is not limited to acting only in explorations separated from form, because even when we are in a modern dance class, for example, the embodied knowledge will be working in us. In addition, the classes on coded techniques can, somatically, be an experience of resignification. This will happen as the dance steps are explored as environments. In somatic exploration, the dancer is living the dance step as a means, not as an end. The repetition of a movement need not be understood as something opposed to exploration, because repeating is also exploring. That is, if exploratory quality is present, repetition will not be something mechanical, it will not be just a copy. Then, there is no need to create prejudices toward

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

coded techniques, as if they were crystallized collections. Teachers, by conducting somatic approaches in their coded dance classes, will contribute to this.

Finally, I consider essential emphasizing that, in the game of somatic exploration, proprioception is not the only mode of perceptual listening, as there is also the kinesthetic perception: perceiving oneself as a dynamic occupation of space-time. In this case, action remains a means (and not an end), as it is not because there is no conscious postural monitoring in continuous progress that perceptual listening is not happening. When we become addicted to conceiving perceptual listening of movement as synonym for listening to postural perception, we fail to recognize that there is another wide gamut of possible explorations – the kinesthetic gamut: feeling oneself moving in time, feeling in dialogue with the surrounding space, feeling gravity in time by the dynamic use of force, tonus, and spatial direction. Somatic dance is surfing in the ocean of the cognitive unconscious.

Final considerations

Both the experience of experiencing oneself as a perceptive being more than as a thinking being and the exercise of reflecting on this condition contaminate the notion of the body, leading it towards the perspective of body-mind integration, which considers that the mind is embodied; that body is mind; that perception and emotion generate immanent meanings that underlie reasoning. This perspective, precious for artistic knowledge, requires us to begin to find an appropriate way to construct our discourses about it. The term body-mind, because it bears a dualistic reminiscence, begins to appear insufficient at times. Attempts to change the vocabulary of our discourses are necessary, and they can help our cognitive consciousness to identify more with the corporeality that it is. We need to re-standardize the way we speak, how we write. When we practice this, it is likely that we will further enhance the integrated being that we are, as well as our integration with others and with nature, that is, our capacity for *horizontal transcendence* – a term used by Johnson (2007) to describe the emotional relation of non-hierarchical crossing experienced in the feelings of connection with the existences that cohabit with us the land within time.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

The perspective of embodiment of the understanding or meanings is very much in line with the way Somatic Education and part of Dance deal with perception, action, sensitivity, intelligence, creativity, interpersonal relations, and the interaction with the world. Although young, Somatic Education has already made significant contributions to several areas. Certainly, Somatic Education and the Arts constitute a nutritious source-area in which Cognitive Sciences and Philosophy can find new compositions. Dance and, in particular, somatic dance can provide countless opportunities for useful experiences to advance the understanding of what the body-mind is.

In his book, *The meaning of the body: aesthetics of human understanding* (2007), Johnson (2007, p. 261) argues: "[…] by observing how art affects us, we gain deep insights with regard to the bodily base of meaning and understanding" (our translation). He emphasizes the property that art has of consummating and transforming meanings when experienced beyond entertainment: "[…] when you investigate works of various arts, you are investigating what the meaning is, where it comes from and how it can develop" (Johnson, 2007, p. 261–262, our translation).

The reason why art provides insights into what is the immanent generation of meanings is certainly related to creative making, which is intrinsically perceptive and emotional. The role of perception and emotion in art is that which makes it a potent object of study in Cognitive Sciences. Creativity, however, from the perspective of embodiment, is not seen as the totally free ability to color a blank page, since we are all pages that are already written with unconscious metaphorical schemes for generating meaning. Nevertheless, we can exercise an interesting possibility to reach a more expanded creativity: conceive, more and more, our creative potency as a dynamization of our embodiment, and explore that intentionally in different ways. In this sense, somatization – whether in territories of Somatic Education or Dance – provides many opportunities.

Notes

[1] In this article, although proprioception and kinesthesia are closely related processes, the following distinction was considered: that proprioception can be understood as perceiving the location of points or zones in the internal body

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

space, as well as the spatial relations between them, concerning our reflex postural system; and that kinesthesia corresponds to perceiving/feeling the movement associated with the spatiotemporal/rhythmic perception of the movement. The framework for this claim is found in Physiology, in the fact that there is a type of sensory receptor that is dominantly proprioceptive, and another that is dominantly kinesthetic.

[2] Capitalized initials will be used for words that are being used as the name of areas, subareas or fields of academic knowledge. Examples: Philosophy, Physiology, Dance, Somatic Education. When these same words are not referring to areas, subareas or fields of formalized knowledge, but to practices or phenomena, their initials will come in lowercase, as with any word.

[3] The term *unconscious* is not used by Lakoff and Johnson in the Freudian sense, but in the sense of being that which operates under conscious cognition.

[4] Bonnie Bainbridge Cohen's book, originally published in 1993, was written in English (title*Sensing, feeling and action*) and consists in the grouping of articles written for*Contact Quarterly*(*CQ*) journal from 1970 to 1980 (Nelson apud Cohen, 2015).

[5] It is not the task of this article to detail the epistemological profile of Somatic Education and its history. For this information, documents available on the Web can be easily consulted by free access. With regard to articles written in Portuguese, published in Brazil from the late 1990s, the main names of authors include: Márcia Strazzacappa; Sylvie Fortin; Débora Bolsanello; Eloísa Domenici; José Antônio de Oliveira Lima; Ciane Fernandes; Marcilio Souza Vieira; Margherita De Giorgi; Neila Cristina Baldi, and Maíra Santos. In addition to these references, it is worth mentioning the article *To those who may be interested: Somatic Education in academic research*(published in 2015 in the journal Revista Brasileira de Estudos da Presença), by Priscila Rosseto Costa and Márcia Strazzacappa, which presents a survey of the production of Brazilian articles, theses, dissertations and monographs that address Somatic Education as the main theme.

[6] In Portuguese, the name of Emile Jaques-Dalcroze's method is written as follows: *Eurritmia*.

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