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The Neuroeducational Perspective in an Ecosystem Scope in a Globalized World

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Review

The nature of emotions is one of the most basic themes in the questions, being treated in different contexts within the scope of culture at the level of art, religion, philosophy and science, since time immemorial. In recent years, advances in neuroscience have enabled the construction of hypotheses to explain emotions, especially based on studies involving the limbic system. The advancement of neurosciences in education addresses aspects of memory, learning and the inseparable body-mind relationship for the subject's learning. We live, in contemporary times, important educational dilemmas that, however evident they may seem, keep distancing educational discourses and practices. If, on the one hand, reflections on the need to transform teaching-learning models, aimed at the integral development of students, are expanding, on the other hand, we still see a tradition of crystallized teaching that is indifferent to new discoveries about how people learn. We are still stuck in a dilemma, where for many there has been a decantation of what globalized and digital education is, even after a practically emergency and mandatory direction for this issue in the midst of the covid-19 pandemic. Neuroscience considers emotions to be very important for the teaching-learning process, since they mobilize existing cognitive resources and in some of them, such as anger, fear and anxiety, they can disturb the teaching-learning process, emphasizing, in additional awareness of this process on the part of educators and students, with regard to how to play different technical and emotional skills inherent in our context of education 5.0. Currently, the advancement of studies in neurosciences reaches

the area of education, such as the neuroscience of learning or neuroeducation. Important authors, such as Damásio (1996), Yzquierdo (2010) and Herculano-Houzel (2009), address aspects of memory, learning and the inseparable body-mind relationship for the subject's development and learning.

The human emotional system works within a behavioral spectrum that can range from the impulsive and curious magnetic attraction to people, events, situations, tasks, problems or challenges, to their immediate avoidance (fight or flight), and may also pass through its necessary adaptive tolerance (LeDoux, 1998). It is fundamental that the teacher has this perception when dealing with each student, since the biopsychosocial subject exists and relates in an ecosystemic way, based on its complexity, which allows him to develop different adaptive processes in the face of stimuli related to a given environment, therefore, depending on how nutritious and positive stimuli related to the environment are, such an environmental characteristic will have repercussions on the subject's neurodevelopment, which is integrated by neural networks. Understanding the biological bases of the human organism helps not only in the anatomical and/or physiological understanding of the organic subject, but also contributes to the understanding of psychic and social processes and, consequently, the way in which the individual relates to his environment and with other subjects, fundamental attitudes for the internalization of information that will reverberate beyond the construction of a sign and meaning relationship in this individual, in a cascade of neuroendocrine pathways that will impact the different organic

systems of the organism. According to Papez, emotions arising from cognitive activities enter the circuit via the hippocampus. The emotions resulting from somatic and visceral perceptions enter the circuit via the hypothalamus (PAPEZ, 1937). As Cosenza and Guerra (2011) point out, Neuroscience points out that knowledge about the Neurobiology of emotions is important for the teaching-learning process because they: 1) mobilize existing cognitive resources (mainly attention, perception and memory); 2) they are phenomena that indicate the presence of something significant at a given moment; 3) determine the choice of subsequent actions; 4) cause changes in the body's physiology and mental processes with the aim of approaching, confronting or moving away from a given stimulus. Therefore, these physiological changes, which constitute the Neurobiology of this basic psychological process, originate in the brain, where each of them is processed in different circuits and systems.

It is important to emphasize that the processing of emotions is influenced by the autonomic nervous system (ANS), a physiological and visceral division of the nervous system, which is responsible for conducting nerve impulses, from the point of view of the unconscious function performed by the nervous system, in terms of so that efferently there is glandular, vascular and muscular regulation. The ANS, in turn, is subdivided into sympathetic and parasympathetic ANS. The first, based on the neurotransmitter norepinephrine or noradrenaline, prepares the body for situations of danger and stress, raising the global metabolic rate, stimulating a greater release of adrenaline and noradrenaline, activating the renin-angiotensin-aldosterone system, etc. However, the parasympathetic nervous system, due to the release of acetylcholine, promotes control of vital functions when the individual is relaxed, promoting balance after the metabolization and elimination of different neurotransmitters, such as catecholamines, acting in adverse situations and/or or fight or flight (GUYTON, 2011; MACHADO; HAERTEL, 2014).

Thinking in an integrated way, associating and considering technical and emotional skills in the dynamics of education, is notoriously a strategy not only aimed at bringing the emotional dimension closer to the technical-scientific and educational environments, but an experiential operation, especially on the premise of the inseparability between reason and emotion, enabling the meaning of what is learned to acquire, from the point of view of mental processes, a denotation that is not only conceptual, but, above all,

provocative, which encourages the individual to be a protagonist about what is learned, being motivated to apply and transform what was acquired as learning into an attitude in a sustainable and dynamic way, in an ecosystem context, exercising its interactionist and elementary role, in a system with which, from its attitudes, it is feedback to learn in an active and continuous way with their interventions, developing and maturing perceptions and relationships in different contexts and representations.

This perspective of education in its ecosystemic context is undoubtedly a therapeutic process, from the point of view of how much this active, productive and conscious individual exercises his autonomous role, performing sustainable and organic attitudes, in order to perceive himself capable of to integrate into its environment, as well as to contribute to homeostasis, not only in the individual sense but also in the collective and environmental sense, based on the principle of its organic and integrated understanding.

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Conflict of Interest

No Conflict of interest.

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