Sensitivity and Consciousness: Indispensable Components in Environmental Education and Training

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ABSTRACT

Evaluating environmentally implies a training process that transcends training in biological content as a unique strategy. From this perspective, it is necessary to review two of the dimensions that best explain the reflexive and critical requirements that are demanded within this education: sensitization and the acquisition of consciousness. Based on this, both concepts are examined with the aim of highlighting their foundations, scope and limitations, from the theories that provide the most evidence of it. It is appreciated that both components are closely associated in their genesis and consequences, where introjection plays a relevant role at the moment of understanding and explaining environmental attitudes and behaviors. It is concluded that while some maintain that consciousness is a physical problem, others affirm that it is metaphysical. A separate group prefers centrality. Of course, the greatest implications are found in their differentiated value systems, their conception of reality and the way in which human beings face their existence, from which they define the significant richness of life. Hence its relevance within environmental education and sustainability.

Keywords: Action, Adaptation, Habituation, Reflection, Socialization.

I. INTRODUCTION

Based on the concepts of Rosales-Romero (2021), who identifies environmental training as a consubstantial part of environmental training, a differentiation is established that transcends educationally, to have a decisive impact on the non-instrumental aspects of school learning. She also argues that environmental education -from which the referred training is achieved- is oriented towards understanding phenomena, to the sum of experiences associated with the interaction with them, during which capacities are developed and knowledge, skills, attitudes, and values are acquired.

Environmental education is, therefore "what remains and lasts" of the reflective processes propitiated by teaching and learning methods.

As reflection is constituted as something personal, which is constructed in the experiences of daily life, from the collective, its configuration is always in development, but especially in evolution, a fact that defines a conceptual distance between what is acquired through training-capabilities, competencies, and what is apprehended/introduced in the people; this last one directly related to their dispositions; to act, feel and think. There are then two clearly differentiated moments, theoretically and operationally, but complementary in their expression; both constitute the point of union where environmental training and the sense of sustainability that must accompany it are configured.

Thus “environmental education as a product” and “environmental education as a process” are understood, with training playing an indispensable role as a condenser of effective action/intervention; without it, the prospects for change or social transformation are limited.

This delimits a complex system, whose dimensions assume in their interaction the role of diversified networks, to the extent that numerous factors concur in it, which as catalysts drive its holographic and systemic dynamics, giving rise to an “interdependent, interactive and inter-retroactive tissue between the parts and the whole” (Morin, 2007, p.14), which allows the symbiosis between context and object, between the environment and the subject. From these principles, it is possible to see how “the cause acts on the effect and the effect on the cause” (Morin, 2007, p. 99).

Although environmental education has been widely documented from the holistic perspective, seeking to show theoretical and methodological alternatives to reductionism, the truth is that the holographic representation tends to be particularly significant for this, by positioning itself as a central point between both options (Chacón-Prado, 2015), where each part is as important as the whole, as each part contains the representativeness of the whole -the whole is in its parts- (Morin, 1994). This reality is possible mainly due to the dialogic nature of its condition, which leads to an understanding of the close relationship between the macrocontext and the microcontext of action (Izquierdo-Aymerich, et al. 2004). The recursion that allows understanding of how social and cultural facts and conditions -economy, politics, etc.- affect nature and vice versa, which
always had been and will be, in an infinite loop that determines current environmental phenomena.

Visualizing environmental education from these representations of the real raises numerous doubts about the possible interactions within the system, mainly, when it is desired to understand the logic that lies in its structure, with the purpose of trying to understand it in order to propitiate it. It does not avoid the fact that it is not possible to make predictions in complex systems, even less if they are nested in uncertainty and apparent chaos; however, the search for principles is a valid alternative when approaching them for their study, considering it essential not to lose sight of the different levels of analysis of the phenomena, paying attention to the connections that explain them. Dialogical and autonomy-dependence exercise contributes to the study of thought from their own complexity.

If, as stated by Izquierdo-Aymerich et al. (2004) “the interpretation of what happens as a consequence of the intervention in the phenomena is also, to a certain extent, uncertain because it requires taking into account the various human purposes that may have driven it” (p.22), then an approach with two of the most intangible aspects of human behavior is indispensable: conscience and sensibility.

Consciousness and sensitization can be seen as two channels of the same river, closely associated with their genesis and consequences, where introjection plays a relevant role at the moment of understanding and explaining environmental attitudes and behaviors.

Fontaines and Jiménez (2016), based on the works of Sainsbury (1978); Arros & Valenzu (2006); Pacheco & Pons (2003); Vigotsky (2004); Hough (1999), and Rycroft (2010), allude that introjection is the act through which human beings internally configure objects, classifying them as good and bad, according to the mediation capacity they have to satisfy their needs. They affirm that in the first moment the introjection is key to identifying and understanding the environment in which one lives and proceeds. As an example, it can be cited the way in which nature is currently introjected and its valuation in terms of practical utility versus its importance as a way of life. This qualification was introjected from the value that others gave it, based on shared experiences, integrating itself as a primary psychological process within the nucleus of the “I”, from where the referents of psychological significance - fundamental for conscience - are organized. They emphasize the relevance of language as a means to achieve introjection, as well as to configure the higher psychological processes. From the psychoanalytic point of view, language is the “maker” of the object that is introjected.

To make the object is to identify it, to perceive it, which is interpreted as the fact of “feeling it” from subjective experiences, leading to the constitution of consciousness. In a phase of consolidation, this will propagate the creation of a self-formation mechanism that will allow the person to “grow in its level of rationality”, from the development of a complex approach to the environmental reality. Although consciousness is perception, it is also action (intervention).

On this basis, the authors assert that it is during the reception of opinions, beliefs, and patterns of behavior transmitted by other people that introjection becomes possible, by contacting it. This is the beginning of socialization, a process that is always virtuous as long as it is invariably approached with a critical and conscious sense. It is in this way that what is introjected by the person is considered an object, while the interaction between these objects is what gives shape to mental representations, which when fully personalized are used as referents to judge reality. Fontaines and Jiménez (2016) confirm this assertion by indicating:

(...the presence of introjection is going to be key in the construction of socialization, but there are situations where the dynamic of bringing elements of the context into the interior puts at risk the limit between the individual subject and the rest of the world. When the entrance of the external element has been of such a deep, intrusive, and overwhelming level, the subject is unaware of itself and functions in congruence with the introjected object, even if this means a dissociation of its personality (p. 117).

These discernments highlight the socializing process, which is only possible through language, emphasizing as a requirement its direction under critical and reflective guidelines, which means being aware and sensitive to the environmental phenomena that are proper to it.

In view of these requirements, Rosales-Romero (2021) poses a guiding question: How to raise consciousness and sensitize people about the major environmental problems?

II. DEVELOPMENT

On the theoretical basis referred to above, the approach to major environmental problems can be based on a state of control that is not only rational in the classical sense of the term, but also affective and motivational, which can be acquired, but above all taught. In this way, sensitization becomes a tool for teaching, useful while it allows modifying people’s aptitude and attitude —to want to do it and to be able to do it—, a capacity and ability that can be encouraged within school environments through research. It is a matter of achieving that the person exhibits a predisposition towards what is to be achieved -action, learning, etc.

Apart from the theories that try to explain sensitization: Bioprocessual and Habituation (Rosales-Romero, 2021), both behavioral, intensity, and repetition of the stimulus respectively, it is essential to conceive sensitization from three sub-processes: motivation, emotion, and attitudes (Mendoza-Moreira, 2014), a triad representative of environmental education, which also provides room for training since without sensitization it is not possible to think of it as adequate; it is finally what gives meaning to it.

It is a matter of differentiating between “adaptation” as a bioprocess, where learning is conceived as “the process by which organisms modify their behavior to adapt to the changing conditions of the environment that surrounds them. It is the main mode of adaptation of living beings” (Ortega-Loubon & Franco, 2010, p. 1) generated mainly by the neuronal plasticity of the nervous system, an adaptation that leads to “learning new skills, establishing new memories and responding to the adversities of the environment” (Ortega-Loubon & Franco, 2010, p. 1), and “habituation”, which in concepts of Delgado et al. (2013) are defined as:

(...)a decrease in response to a stimulus that is repeatedly
presented. This decrease occurs most rapidly when: (a) the stimuli are presented with a high frequency, (b) the stimuli are of low intensity, (c) organisms are exposed to the stimuli for an extended period of time, and (d) during exposure to the repeated presentation of the stimuli there are no different stimuli that produce dishabituation or sensitization. (p.17)

This explains why long-term training generally does not yield the expected results, especially if it is thought of as a vehicle for training people on the basis of certain competencies that are conducive to performing a given job. When people are habituated to a situation, for example, living in polluted environments, eating junk food, hunting wild species, etc., it is difficult to modify their behavior patterns (new habituation) by resorting only to the isolated acquisition of biological concepts and theories, the occasional development of common environmental care practices or the appropriation of environmentalist slogans. Without repetition, with little time for manifestation and high intensity—tinging courses and workshops— and particularly without the presence of stimuli that lead to dishabituation, that is, to the sensitization of the person, the desired change will have no effect. Without sensitization, that is, without a process that includes stimuli to "get out of the habit", there is no successful training. Attention can be achieved, but not habituation.

At the other pole is adaptation as a biological mechanism, largely explained by exposure to abrupt and stressful situations, which lead people to change their attitudinal patterns of socialization (coexistence) as a defense and protection mechanism, expressed at the emotional and cognitive levels; it is the manifestation of new motivations, first person and then group. Living through and experiencing environmental catastrophes are often the best examples of this. Propitious scenarios to develop new skills and knowledge that modify behavior.

In both cases, it is possible to identify motivation as the key element in the development of new habituation, or even of adaptation itself, strongly linked to sensitization and conscience, indispensable in the acquisition of meaningful learning. Rosales-Romero (2021) specifies that for this, the person requires an adequate mental state, sustained by a clear conscience of what one wants to achieve, always on the basis of an accumulation of basic knowledge that serves as a starting platform. This is where environmental training can have a direct impact, as long as the person is motivated and in emotional control.

Whether a person feels compelled to intervene in an environmental problem depends on the sensitization, nurtured by the sensations and perceptions that possess, which lead the person to identify with the problem. It can be said then that "one is sensitive because one is conscious".

And what does it mean to be conscious? Rosales-Romero (2021) defines being conscious as the condition in which a human being is aware of its environment, under spatiotemporal criteria. From a neurophysiological point of view, consciousness "is a state of mind, subjective, unified, and continuous. It resides mainly in the posterior areas of the cerebral cortex. The functional integrity hypothesis is the one that currently best explains how the brain creates it" (Morgado, 2019, p.1). From this follows the principle that consciousness is simply the product of information processing by the brain, acquired through the integrated perception of stimuli generated in each lived experience and the joint processing of these stimuli. According to this author, being individual, consciousness allows the human being to be aware of it, so that "not only are we conscious, but we are also aware that we are conscious and we can think our own thoughts. Thinking that we think, so to speak. That is called meta consciousness or self-consciousness" (Morgado, 2019, p.2).

But being conscious goes beyond just being aware of the environment, since:

Consciousness is the capacity of human beings to perceive reality and recognize themselves in it, while conscience is the moral knowledge of what is right and what is wrong, based (sic) on the knowledge of oneself and one's capacity to act on one's environment. Both words derive etymologically from the Latin conscientia.

In conscience, we start from shared knowledge and in consciousness from a more global one. (Palomo, 2021, p.1).

From conscience, human beings share a socially constructed morality —discerning between good and evil—, but also build a global perception of the world where they recognize themselves as individuals so that consciousness is the psychic act by which the individual recognizes and becomes aware of a situation (Cantero, 2019). Suzanne O'Sullivan, cited by Palomo (2021), admits it as a totality composed of various states: attention, perception, and memory. The transcendence of this lies in the fact that it is necessary the consciousness in order to reveal oneself in conscience.

Therefore, Rosales-Romero (2021) states that environmental consciousness is “associated with the construction of visions of environmental reality and ideological frames of reference” (p. 58). Although she uses the term conscience in a generic way, she stresses that this should not be linked only to informative aspects as the main objective, but that “environmental conscience should start from the reflection on current lifestyles, forms of production and consumption patterns” (p. 56), to which she adds:

In addition to establishing a clear articulation with sensitization and conscience, environmental training must be associated with reflection and action, so that it may give rise to other ways of relating to the environment (Sauvé, 2003). From this point of view, educational interventions that do not encourage reflection do not contribute to enriching the vision of environmental reality, nor do they promote processes of evaluation and self-evaluation of the ways of acting. (p. 59)

Reflection and action from which meanings about the environment are constructed. Experiences are loaded with thoughts and valuations, derived from knowledge, but above all from a system of beliefs. Both consciousness and conscience are acquired; both allow a human being to interpret reality and assume it as its own, judging it on the basis of its knowledge and opinions, defining what is good or not, and what is right and wrong. When this becomes evident in the individual it is possible to speak of manifest behavior.

If both are acquired, then it is possible to encourage them, to propitiate them, from didactic dynamics, supported by the design of educational resources, implemented in appropriate
learning environments, aimed at enriching the set of thoughts, perceptions, values, and beliefs from the experiences lived. This will lead to conscience and consciousness, which in the case of environmental education should be critical and purposeful.

When courses or workshops for environmental training are designed and operated in an ordinary way, through the selection and disciplinary ordering of their contents, shown as disjointed islands that are approached in isolation, the configuration of environmental consciousness is disabled.

III. CONCLUSION

On the understanding that the neuronal activity of the brain is distributed and that there is no anatomical-functional center in the brain identifiable as the place where consciousness dwells, it can be established that “no one is in charge”, since the “I” does not decide, it only tells or narrates stories (Neuroscience-Neuroculture, 2020). So, how are decisions made? To intervene or not to do so -behavior-, to accept or reject something -disposition-, to be concerned or indifferent to things that happen —affectivity—, to be interested in knowing or prefer to ignore -cognition-; consciousness acquires form from these dimensions, condensed within the environmental formation, revealed in the midst of complex social frameworks that must be actively and reflexively approached.

If Daniel Dennet (1991; 1995) is right, consciousness is generated from a flow of multiple narratives, which are processed without any synthesis. These "drafts", as he calls them, act as raw material that the brain uses, and the person adjusts the behavior based on them, influenced by the continuous sensory inputs to which the person is subjected. Under a distributed arrangement, these drafts converge and associate continuously, feeding back, until one of them is expressed, which is certainly not a synthetic version of all of them, but their integration. This narrative flow is stored in the memory to be used as a guideline. Once again, it is a matter of reconciling cognitive psychology and neuroscience, as is also set forth in Dawkins’ theory of memes (1976), where conscience is thought of as the sum of memes, also called "minimal units of cultural transmission". Ideas that reproduce, mutate and evolve, compete and inherit codes from other memes, just as genes do. It is the selective transmission of ideas, from mind to mind, through speech, writing, gestures, and cultural information transmitted from one mind to another, between individuals, and from one generation to the next -cultural evolution-. Cultural features such as techniques, skills, customs, and habits, are memes that determine behaviors, such as littering in the streets, wasting water, deforesting, burning grasslands, or vice versa, respecting nature and living in harmony with it, among others.

Without a unique definition of consciousness, it will be necessary to consider leaning toward what is expressed by García-Castro (2019) who establishes that metaphysical theories, from which it is also attempted to explain, rival the reductionism of neurobiological theories since they postulate the existence of another plane of reality —another dimension— from which it outlines the possibility of an intermediate position between materialism and idealism, between mind and body —psycho-physical parallelism—, even inverting their relationship, by suggesting that consciousness is the creator of brain activity and of the “world”, not the other way around.

Of course, these physicalist theories strive to try to understand the arrangement of structures and their functions. For example, what is perceived visually and through the senses or access to working and long-term memory - but they do not deal much with the physical processes that take place under the shelter of people's lived experiences, which according to Chalmers (1995) are processes that can manifest themselves without the need to generate conscious experience, defined by him as the difficult problem to address.

Chalmers himself presents "naturalistic dualism" as an alternative, which involves an updated version of Cartesian mind-brain dualism, with the addition of experience as a link between both components, a position that brings it closer to phenomenology. Although it should be noted that its premises are sustained by a physical vision of universal reality, taking as an example the fundamental entities of mass, space-time, and electromagnetism as basic elements, which have in common being instances of the same property: physics. In this way, consciousness would act as a property that integrates the mind, the brain, and experience as fundamental entities, thus configuring the "consciousness experience". What is noteworthy is that he attributes two senses to the mind; the psychological and the phenomenological.

In this way, it is assumed that consciousness is a primordial property of the universe, a kind of universal consciousness that does not need to be explained in itself, "but constitutes a starting point from which we can formulate psychophysical laws and principles that allow us to establish mechanisms of interaction between subjective experience and the laws of the physical world". (García-Castro, 2019, p.4). Everything seems to indicate more of the same. The natural sciences continue to predominate in Western thought. The Cartesian theater is still more valid than ever. Metaphysical theories continue in their long wait.

The human being is more than thought (res cogitans and res extensa) logically organized from reason and expressed in the intellect. Fear, passion, enjoyment, joys and sorrows, memories and ambitions, proper to personal identity and free will, are not only the behavior of a vast framework of nerve cells and associated molecules, as Crick (2003) asserts, nor is language a superior psychic function of the mind as Ocampo (2006) subscribes, who also grants to consciousness the level of "dimension of the mind itself". In any case, consciousness can be a way of access to the understanding of the human mind, which constructs culture and in turn is shaped by it (Alvarez, 2005).

As Leff (2018) states, tradition must be canceled. The old struggles between the Judeo-Christian and Islamist Western-Eurocentric- worldview and the Eastern one, represented by Confucianism, Buddhism, Taoism, and Hinduism must be abrogated. Is it the confrontation between the mystical and religious East with the secular and technological West? (Fiore, 2001, p.9), that is for sure. While some argue that consciousness is a physical problem, others claim it is metaphysical. A separate group Solomonically prefers centrality. Of course, the major implications are to be found
in their differentiated value systems, their conception of reality and the way in which human beings face their existence, from which they define the significant richness of life. Hence its relevance within environmental education and sustainability.

REFERENCES


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