

# Eco-motricity: An epistemic turn to re-thinking physical education in Chile

JOSE M. PAZOS-COUTO<sup>1</sup> ✉, SERGIO TORO AREVALO<sup>2,3</sup>, OTTO LUHRS MIDDLETON<sup>3</sup>, FELIPE HIDALGO KAWADA<sup>4</sup>

<sup>1</sup>Faculty of Education and Sports Sciences, University of Vigo, Vigo, Spain

<sup>2</sup>Institute of Education Sciences, Austral University of Chile, Valdivia, Chile

<sup>3</sup>University of Santiago de Chile, Santiago de Chile, Spain

<sup>4</sup>The University of Sydney, Sydney, Australia

## ABSTRACT

The main purpose of this paper is to stress the epistemic and ontological proposal of the physical education. Subsequently, and using a critical reflection approach in the context of climate change and environmental crisis, the Eco-motricity proposal is presented, which represent an epistemic turn into the discipline and, in consequence, a didactic which consider the construction of a new ethic and relationships among individuals. Finally, challenges, new pathways and questions in the physical education research and the practices in the school are proposed. **Keywords:** Eco-motricity; Physical education; Environmental crisis; Environmental education.

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✉ **Corresponding author.** Facultad de Ciencias de la Educación y del Deporte, Universidad de Vigo, Campus Pontevedra CP: 36005, Pontevedra. Spain. <https://orcid.org/0000-0001-7234-6834>

E-mail: [chema3@gmail.com](mailto:chema3@gmail.com)

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## INTRODUCTION

*"And we tend to make life not a passing moment  
but an eternity through the multiple facets of the transitory"*  
(Ernesto Cardenal, 1989, p. 120).

One of the characteristics in which current capitalism has been expressed, which in its present form we could call neoliberalism, has been the conflicting relationship between its modes of production and wealth generation and the consequent environmental disaster (Sapiains, 2010).

Sapiains et al. (2018), following Rittel and Weber (1973), point out that we would be in the presence of a "wicked problem", that is, a "category of problems which are difficult to define, which have many interdependent components and often multiple causes, the solutions of which result in unforeseen consequences; which are usually not stable, do not have a single clear solution. They are hardly the responsibility of a single organization or group of people and involve behavioural changes and are characterized by recurrent failures in public policies to deal with them" (p. 45).

Although the environmental crisis has been extensively investigated and there is agreement among citizens, researchers, governments, public and private organizations regarding the existence of this crisis, one of the points that distance is the question about the ways to face this condition of planetary crisis. Within the wide range of actions that have been developed by international bodies (see, for example, those developed by the Intergovernmental Panel on Climate Change), the enactment of a series of laws by the states, the creation of programs and actions by environmental NGOs, among other initiatives, one of the main ones has been environmental education, an initiative that began to be most prominent in the world from the sixties (Quay, 2016).

In Chile, according to data from the National Survey of Environment and Climate Change (Ministry of the Environment, 2017), for Chileans, the environmental crisis is not a priority in terms of the country's problems. In fact, it occupies the penultimate and final place in various regions of the country, being surpassed by other vital needs such as health, low wages, education, etc. However, Chileans negatively evaluate the quality of the environment in the country, and it is precisely in education and schools that people perceive that important efforts are being made to protect the environment. At the governmental level, the National Action Plan on Climate Change 2017-2022 (Government of Chile, 2017) has also been initiated, with a view to "effective implementation of measures that have been identified to adapt to climate change for the reduction of the country's vulnerability, while contributing to Chile's international commitments to the United Nations Framework Convention on Climate Change (UNFCCC)" (p. 8).

If we look at the Chilean school system, the most emblematic case of recent years is the national environmental school certification system (SNCAE). To this end, schools are evaluated in three areas: at curricular level, evaluating the presence of these subjects in the curricula, seeking interdisciplinary and transversal work of the same, and with contents close to the real local problems experienced by the community actors; in the field of management, mainly in the management of their own resources (water, energy, etc.), and in the educational practices of the establishments and; in the relations with the environment, where it is sought that the establishments are a key piece in the local communities and cooperate in the interventions of their own territories, developing learning connected with these realities. The schools, after being evaluated from an environmental matrix, are classified within three levels of certification: Basic, Environment or Excellence (Chilean Ministry of the Environment, 2017). We can see that these actions

are consistent with the management models that have been installed strongly in Chilean schools, and in which they operate criteria of classification of schools, processes in which, as investigated, it has led schools to compete for better results in these assessments.

For the purposes of this article our intention is not to focus on the processes involved in these initiatives, nor to devote ourselves to a thorough analysis of this certification system. In particular, our focus is to examine the roles and deployments that Chilean school physical education could be having in this educational setting. At the global level, we can say that physical education has raised a variety of initiatives and pedagogical proposals related to the topic, both to include environmental education in the curricular programs of physical education, as well as proposals that seek to definitively re-configure the discipline from new ontological, epistemological and axiological pillars (Hill & Brown, 2014; Quay, 2015; Quay, 2016; Wattchow, 2016).

From this last development within the discipline, this article aims to present a disciplinary proposal called 'Eco-motricity', which is shaped by a collective epistemological effort among Chilean teachers who have tried to rescue ecological knowledge contained in popular knowledge, especially of the native peoples, as well as from their position as inhabitants of subordinate territories in the face of the global movement of capitalism and its negative consequences, which impact most harshly on the developing countries.

We will begin this article addressing a description and characterization of the historical moment and situation of knowledge that involves us in epistemic, aesthetic and political looks and challenges that this epoch demands.

The concepts of Ecology, motricity and eco-motricity will then be presented from a point of view that will help to understand the overall role of the Physical Education teacher in the educational context, and that we pose as one of the essential knowledges of it. Similarly, and for the attainment of the aforementioned purpose, we chose to carry out a historical and epistemic contextualization that gave course to physical education. Finally, the proposal of eco-motricity for educational action will be presented, which, as an educational one, is always a possibility of transformation of the human and its social contexts, of the actions and understandings that allow a different ethics, concrete in behaviours that not only seek a qualitative and quantitative value of the human performance, but also mainly, as with the mandate of the Inca (Estermann, 2008), human life, as a project and concretion, is guided by improving the cosmic condition.

## **FROM MOTRICITY TO ECO-MOTRICITY**

Speaking of motricity in its broadest sense implies a reflexive attitude and maximum humility on the part of those who have developed this discipline, because it involves and demands a search for concepts that we have developed over many decades and that imprint ways of understanding the world, the person, his environment and his sense of existence from a form of detachment and neglect to the organic and symbolic conditions present in our performance. This search, linked to the context we will address and from the conviction that overcoming a critical context or situation involves overcoming the ways of reading that context, allows us to draw possible paths for that new reading.

Therefore, overcoming -may not be an exaggeration to say survive- this time of planetary crisis, forces us from our discipline to stress the concept of Physical Education in all senses. But an epistemic, phenomenological and, above all, ontological transformation must emerge from the cultural dualism so characteristic of discipline, from its language and nomenclature, to its operational and situated deployments, confronting the origin of physical education in the separation or fragmentation of the human. As they tell us

Wheat and Pelaez (2007, p. 25) "To separate, in man, the physical of the person means to say that, in action, the human being does not update all its potentialities, and... only some!", and even though it may seem like a repetitive speech, it is not less valid or true, that we are neither body nor corporeity, but that we are people interacting, linked and situated in a concrete reality. In this sense, and to transcend the concept of Physical Education and its limitations, we propose that of motricity, which "is at the same time expression and impression of the human, its species and its environment" (Sérgio y Toro, 2005, p.107). This original concept of Merleau-Ponty (2000) and developed from different currents and cultures (Sérgio, Trigo, Genú y Toro, 2012; Toro, 2017a) leads us to assume that human action is not possible, since its occurrence, divide it or divide it as who divides parts of a mechanical structure, and we can only understand it as a global, systemic and complex phenomenon, where at least they clearly distinguish, according to Varela (2016): cycles of organic regulation, from an enabling and conditioning environment; cycles of sensory-motor coupling with the environment and, cycles of intersubjective regulation.

Each of these invariants shows us that the condition of the living is constituted and emerges as a condition organized within an environment that allows it, as a possibility that although it generates or auto produces (Maturana and Varela, 1986), is only possible by an environment that contains and favours it. At the same time, its permanence within that environment will depend on the qualitative network of interactions, under all conditions of possibility that an organism, animal, person or society manifests with the same environment. Therefore, motricity is more than the ability or condition of movement, but a systemic configuration unfolded in action and allowing the simultaneous constitution of the human and the world.

This global-systemic conception of motricity, we can link or focus it equally on the concept of Ecology, understood as "the science and art of relationships and related beings" (Boff, 2000, p. 23). What the 'eco' prefix brings to the concept of motricity is that, while all motor movements are systemic and involved within a context, the eco prefix reminds us of home (oikos) common and unique in which these motricities develop and, with it, the need to carry out an epistemic, ontological and ethical review of the motricities. That is, from a responsibility of care and protection of what allows us the condition and possibility of being alive, and of living beings as a system of relations that promote the same conditions (Boff and Valderrey, 2017). Basically, a supersystem that is generated in the fluctuating interaction with a certain balance of life. Hence the motricity from this approach proposes an acknowledgement of the eco, as an ontological, epistemic and ethical responsibility on the modes of existence, that contain as a principle of action the care of the different forms of life, as well as the conditions that make them possible.

In this way, eco-motricity shows a perspective that tries to get out of the dualistic and extractivist anthropocentrism that has developed in recent times, assuming modes of existence that compromise and make responsible the acting or deployment of conscious action of care, both of the living and of their conditions. This involves a review of the technologies and their corresponding use within the area or areas that have been developed, such as the types of games, dances, sports or any other manifestation according to the relations and forms of meaning that give the environment and living conditions. For example, mass sporting events today, the pursuit of body ideals that spread through social networks, the huge loads of garbage generated from recreational and leisure events, realize how these bodily practices are intimately intertwined with the consumer culture promoted by today's capitalism.

In that sense, it is very important to understand that this proposal distances itself from what is commonly known as "Activities in contact with nature", because it starts from a different interpretative matrix and attempts are made to overcome the dualism remaining and still present in the current formation and development of these activities, and where the ontological, epistemic and ethical discussion remains absent.

We propose, therefore, from eco-motricity to make an epistemic turn, to leave the fragmentary forms, apparently neutral (ethically speaking) with regard to the environment, and the forms of understanding based on the endogenous individualisms that physical education has sustained and that we will take care to analyse in the following sections.

Looking back, physical education has its origins in the very foundations of capitalism from the anthropological and social point of view. In fact, John Locke (1963), the father of empiricism, argued that if the human being was composed of two substances, reason and body, it should provide three educations: intellectual, moral and physical. The latter, being natural, must be at the service of the intellectual and the moral, as nature should be subjected and domesticated to the human society, thus alluding to a confrontation of the rational with the natural, of life and culture. This confrontation, based on the ontological assumptions developed by Descartes, allowed not only the manipulation and sectioning of the body on such a large surface, but also of all that resembled or had as its initial source the natural.

Descartes' conception of living organisms was decisive in the development of the human sciences. The main task of biologists, physicians and psychologists over the past three hundred years has been to elaborate a careful description of the mechanisms that make up living organisms. The Cartesian approach was crowned by triumph, especially in biology, but it also limited the course of scientific research. The problem is that scientists, enthusiastic about the success achieved in treating living organisms as machines, came to believe that these are only manipulable objects (Sérgio, 1999, p.206). By analysing physical education from this perspective, it can be said that it is due to a technical and instrumental rationality (Toro, 2008), giving special emphasis to what is seen within a certain stereotyped model of movement and not to the whole process, which is framed in specific socio-bio-cultural circumstances and contexts. Such a situation is expressed in a stativity that de-links the vital and organic processes with the processes called rational.

As a consequence of this situation it is evident that Physical Education, as a discipline of knowledge, does not respond to the whole process that it wants or intends to cover given its conceptual basis and, At the same time, it no longer fully or at least coherently synthesizes an area of study, since in educational action, whatever it may be, it does not deal with "physicists" but with complex and multidimensional beings (Toro, 2008). Within this approach, motor overcomes the reductionist vision centred on the instrumental and standardized movement and takes over the political and cultural processes of human action.

On the other hand, if we place ourselves in a conception of person as an eco-self-nomic entity, entangled in a structural link between what constitutes it as a unit and its mediate environment (Maturana and Varela, 1986), it contains in itself different dimensions through which it manifests and develops, not in isolation, but on the contrary, affecting each other (Castoriadis, 1997).

Similarly, in the words of Varela (2016), we understand the human being as a web of identities without centre that are in a dynamic and fluid interaction, in which each aspect is confronted or developed from a localized identity affecting the entire configuration. Therefore, we necessarily find an indivisible being that cannot be worked or developed by parts, but, on the contrary, each part updates the whole, and this set, in turn, updates each part. In other words, in this sense it is not possible to speak of the body as an object, to say that one has a body, but that one is a body. In other words, from a phenomenological reading, it would be more pertinent to speak of corporeity, which alludes to the experience of being a body (Merleau-Ponty, 2000; Zubiri, 1986). For its part, since the approaches of Henry (2001) and Varela (2016), the concept of corporeity maintains an objective goal, proposing, by virtue of the globality of the constitution of person, to speak of the embodied condition of the subjects, in the sense that it is the flesh, the fabric and material constitution that

feels itself, as well as, at the same time, sensitivity and act (Varela, 2016). In that sense, there is no person, not even from a secondary position, outside or without the embodied condition that constitutes it.

From what has been said, we can no longer speak of more than one portion of the person but always of all of him, "that person who lives, feels, thinks, does things, moves, grows, gets excited, interacts with other people and with the world around him" (Wheat, 2007 p.24) and from these relationships he builds his own meaningful world that serves him to give meaning to his life. In the practice of School Physical Education, beyond discursive and practical dualism, just because of working with human beings, it is feasible that many teachers, who intuitively seek beyond technique or performance, perform this task without consciousness or assistance.

From these guidelines, we are oriented towards the principle of action (Arendt, 2000; Noë, 2004; Toro and Valenzuela, 2012), which for general education and physical education of our time presents itself as challenging, in the sense of re-linking, re-uniting and vacating the different knowledge of the sciences of nature or biology with the great challenges and aspirations of the human being of our time, which, incidentally, include the planet as a whole. This principle leads us to conceive of didactic and pedagogical action from and to another direction, focused on the search for the possibilities of realization of each human being, his community and his environment.

Within such an action the various potentialities and possibilities are contemplated, the senses and emotions in different moments and situations of life. It is understood that such realization is not an individual and isolated process; on the contrary, it is generated from the relationship with others, in the broadest sense of the word, and, at the same time, in contexts and environments that are configured and re-signified in the same relationship, since the process of personal realization is at the same time community and ecological, since unity is also with the pre-existing.

In this dynamic, distinctions help to understand the process, but in no case can they be confused with separations, because they cannot generate themselves, but they are generated from co-existence. Therefore, the human being emerges from the condition of a certain environment, because as an unfinished natural being it is constructed according to the intensity and characteristics of the relations it generates. In this sense, the environment is nothing other than the most essential condition of the self and not only a place where it exists, but also the place for the development and updating of the being in all its dimensions and possibilities. Thus, human experience is always an eco, relational experience from a spatial-time configuration that overflows its own skin, extending towards a cultural and topographic skin that is situated and mobilized between the very concept and the eco-ceptive. Therefore, person and environment are not separations per se, but two distinctions in a whole.

In these approaches, the notion of corporeity is no longer just placed in the classical revision according to the dimensions that constitute it (body-cognition-emotion) and how closely these co-exist, but now comes the question of the limit –or size - of the corporeal.

Is there a corporeity of the skin-organ inward, intra-skin? Is it possible to speak of a corporeity extra-skin? Is it possible to dilute the anatomical and ideological boundaries of the corporeal with the concepts of cultural and topographic skin? Beyond these questions, it is essential for us to define whether the answers to them are universal or particular to each person, as we maintain in this work. That is, it may well be that for one person, corporeity is limited to intra-skin, while for another it may be expanded and unlimited in the cosmos. Next, we propose a vision from which to address the issue of unlimited or expanded corporeity.

## EPISTEMOLOGY AS THAT WHICH IS KNOWN AND THAT WHICH IS EDUCATED

*The first issue facing a theory of physical education is anthropological. If it does not clarify its anthropological assumptions, its foundation will always be insecure. Every conception of formation and education responds to a certain image of man that marks his path and direction (Gruppe, 1976, p. 35).*

The above quotation, drawn from one of the most important books of the epistemology of Physical Education, places us, from a historical perspective, in a challenge that was characteristic of the last century, focused on the anthropological processes, in the most particular sense of the term, aimed at specifying the human as the aspect to consider, but the only one. This aspect is understood in a historical context characterized by the post war and the development policies promoted from the United States, Europe and the Union of Soviet Republics. What is interesting for the purpose of this contribution is that discipline is understood as a work based on what is understood as humanity detached from its contexts and the effects that this provokes and conditions in the human.

In this way, the human is characterized by the marked symbolic-biological relationship that implies, both a dynamic system of self-organization structurally coupled to its environment (Maturana and Varela, 1986), as part and constituent of a network of coordination and relational flow that allows it to constitute ways to guide its personal and social behaviour. For this it generates communication, sense of coherence and sense of action of its becoming, which forces us to assume that, as symbolic, the senses emerge and consequently the ethics acquire form, place and concretion, and, as an action it will inevitably lead us to the ethical condition (Varela, 2003; Arendt, 2000; Dussel, 2003, 2016; Lluís, 2005).

Likewise, the interpretations and theories derived from science (understood within the cultural processes) that were established and articulated within the disciplinary field, were precisely impregnated from this same perspective, applied in a dualistic vision and focused on the morpho-functional, on the one hand, and on the more inclusive, Unicist or monist perspectives (Gevaert, 2003). Each in turn developed different ramifications depending on the emphasis and interests to deepen, but they all specified their fundamentals centred on descriptions of the human phenomenon as devoid or detached from an environment, environment that not only affects their performance, but is a condition of possibility of their organic existence-symbolic and its modes of relational existence.

Beyond the anthropological approach that may be ongoing, it is also a fact of the cause that the terminological emergence of discipline is based on an educational phenomenon or process. So, it will always be linked to the perspectives of social and relational organization that are seen or prioritized within a given society, as well as the sense that the education itself unfolds (Chomsky, 2006; Sodr , 2012; Freire and Fa ndez, 2012). So, every educational effort is, in itself, a political, ethical and cultural endeavour, therefore, of thought of understanding of what is lived. As Schumacher would say:

An education that fails to clarify our core convictions is merely training or fun. Because it is our core convictions that are in disarray and while the present antimetaphysical attitude persists, such disorder will go from bad to worse. Education, far from being humanity's greatest resource, will be an agent of destruction, according to the principle of harming without distinction (2011, p. 104).

In that sense, any effort to think about discipline is, at the same time, a huge effort under the assumptions that form, constitute, organize and update it. Aspects that, according to the sustained progress of the same sciences, are not possible today, without thinking who builds the knowledge. A thought effort of double entry,

of the educational and the "physical" implies an optical positioning, in the most literal sense of the term. A specific location that generates a perspective absolutely dependent on the structural and organizational possibilities of who observes or visualizes (Varela, 2016). It follows, of course, that such observation is conditioned by the beliefs of the society in which it is found, in the codes and coordination of actions that have arranged a way of understanding the experience, the constitution itself and the world that supports it (Gallagher and Zahavi, 2013).

For this same reason it is vital the way in which the senses that give character and form to knowledge are understood and orientated, as well as the possibilities and limitations of the one who knows. From there you can clearly visualize the directions and options intended, as well as the relevant paths and methods. Figure 1 shows the basal relationship between organism and environment, the basis of a mutual co-existence, as a loop or rhizome that unfolds in a permanent virtuous dynamic (Varela, 1994).

It is in this context that Pedagogy in Physical Education appears as a scientific program (Lakatos, 1983) and social practice that aims to address not only its own specific field, but also the context where it is situated and takes place, and that involves going beyond the scientific or educational, but also considering the natural, economic and planetary. Without doubt, it focuses on observing and considering the regularities and invariants that provide a basis of compression and action as a field of knowledge that manages to respond and anticipate modes of existence that assure the most basic of the phenomenon of the living, at least, or ideally, professional competences that point to a distinction, both regional and national, on activities in relation to and intentionality of nature, specifically what is being called eco-motricity.

The scenario in which physical education is found is particular. As Dussel (2003) points out,

"We are here in front of an instrumental fetishized reason, much more destructive than what judged Max Weber or Jurgen Habermas. The anti-ecological danger of technology is an effect and not the cause of the problem. The destructive technology of life (of the earth and of humanity) is the one chosen and used based on the instrumental criterion of "increase of the profit rate", and not based on the material criterion of the permanence and development of the life of the earth (ecology) and the over-experience of humanity" (p. 31).

By the same token, identifying elements within the different manifestations of human motricity in general and its operationalization within the school system as Physical Education, would contribute not only in theory to technology and eco-logical behaviours, but also in assuming the responsibility of the Common House (Francis, 2015), and become an active and direct actor of the Earth's living conditions in a deep and committed sense.

## **CORPOREAL EXPERIENCE, PERCEPTION AND HOME**

Home is not a term with a narrow and objective meaning. Although in certain phrases it can be used as a synonym for home, it has a more material dimension than home. A house exists independently of what is living in it; not so the home, which is a place that mutates, expands or reduces, not in the material dimension, but mainly in the valuation of those who attach themselves to a place sense as home.

Approaching the notion of home from the qualities or conditions that it must have to constitute itself as such, we consider that a home is:



- a) Place of reciprocal belonging, where the person feels he belongs to the place and the place recognizes him as his own, which translates into signs of identity, since both the person "seems" to be of the place as the place "seems" to be of the person.
- b) Nest site, which offers security or shelter where the person is comforted, rests, recharges vital energy, and that is where he or she would like to be if he or she feels threatened or dejected.
- c) Dear place, which provokes your care. The person includes the place as one more of those beings to whom he owes care or attention.

We propose that the notion of home is variable among people, communities and even during the history of each.

In a logic of growing expansion, what everyone feels as home, evolves from –to:

womb => cot => bedroom => house => street => neighbourhood => city  
=> country or ecoregion => continent => planet => cosmos

Asking us what place(s) we are generated reciprocal belonging, shelter and affection, we could identify how expanded is what we feel as home and, at the same time, realize that different experiences translate in different homes. Also, recognizing that home is a notion that can evolve as well as involve. Has this been taken into consideration by Ernest Haeckel when he referred to oikos (home) - logos (study) giving conceptual genesis to ecology?

We will review, in order to contribute to the understanding of how each one shapes their notion of home, the perception of the environment and what affects it (Boff, 2005; Boff and Valderrey, 2017; Noe, 2004; Varela, 2016). A basic principle of environmental education is that one who says that one takes care of what one wants, one wants what is known and one knows what is experienced. But between caring and experiencing act multiple mechanisms and perceptive phenomena and, therefore, comprehensive. Experience, perception and understanding interact in complex relationships, far from cause-linear effect logic.

Perception is both reflexive, philosophical, political and economic phenomena, as well as skin, smell, hearing, taste, kinaesthesia and sight, because the sensitive corporeal relationship that is established with the environment is gravitational in the configuration of the understanding that each person obtains and contrasts with others and at the same time, the pre-compression that one has in front of a phenomenon affects the perception through which one accesses the experience. In the light of the difficult planetary contingency we live and in the search for explanation-solution, the technological dimension arises as a bridge between the first (reflective phenomenon) and the second (skin).

By way of example, we will focus on how people move through space and how they are linked to it according to the device–used vehicle. On the one hand, consider the car, which offers a recharged technology of functions that "free" from the perception of the environment: an engine that moves without effort, heating or air conditioning, doors, music, cushioning and increasingly soft tires. In short, an artificial everyday corporeal experience, in which there is no effort, cold or heat, wind in the face or silence; the understanding of space, with its problems and needs, is affected by a non-perception. The bicycle, on the other hand, is a technology that exposes the person to the sensory stimulation of the environment, a condition that enables the link with the experience, As the absence of barriers gives day by day a continuous and spontaneous multisensory and reflexive stimulation. For a tree, bird, wetland to be protected, the first condition is that there are people

who know that they exist, who have smelled or heard them. The rapid movement of motorized and caged people is detrimental to this process, while slow mobility with human metabolic energy (Illich, 2006) and without sensitive barriers, favours it. Thus, there are everyday experiences that separate the reflexive, philosophical, political or economic perception with that of skin, smell, hearing, taste, kinaesthetic and sight, while others fuse them.

This relationship does not appear only when comparing mobility by car and bicycle. To do this, the following figure illustrates the relationships between sensitive experience, process of being aware and person-environment bonding and how in these relationships they intervene for or against certain modes of inhabitation or human mobility. Other ways it emerges.

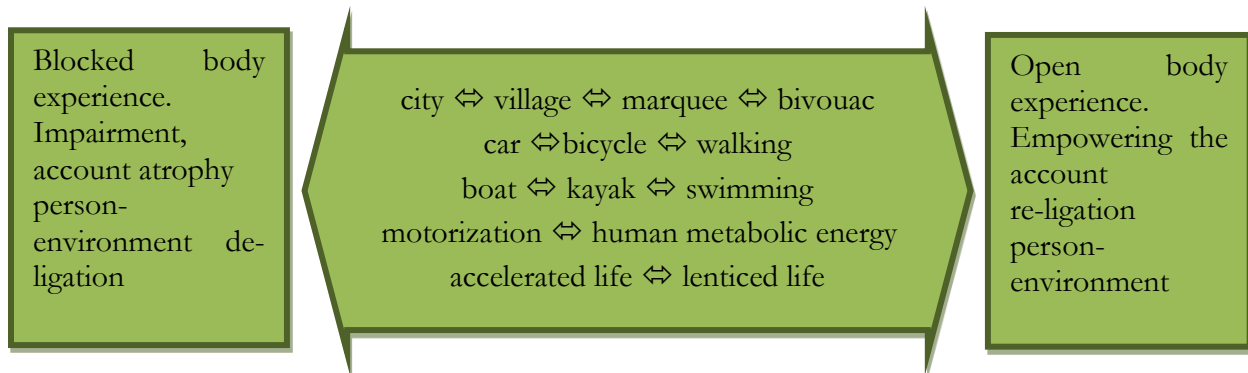


Figure 1. Unbinding or re-binding of the person and his environment through a blocked or open corporeal experience. Note: "realizing" is an expression of Gestalt Psychotherapy which means "the ability of each human being to realize what is happening within himself and in the world around him" (Ruiz de la Rosa, 2003, p. XX).

If the corporeity is built in relation to the environment and if from this construction the notion of the home emerges, how strong is the link between the corporeity and the home of each person? Will it be possible to expand to such a point corporeity and home that finally your skin matches, fuses and becomes "united with the whole"?

Undoubtedly, the previous questions demand a deep epistemic reflection in a social context that urgently requires these discussions, and that have already started in different groups (Sonninger, 2000; Toro, 2009; Toro and Luhrs, 2012; Toro, 2017b; Luhrs, 2018; Rodríguez, 2018), and which involve a different way, not only to understand the anthropological and its sense of knowledge, but also its disciplinary epistemic consequence, that is, the epistemic shift that we have mentioned during the development of this article. Such a shift implies, in our view, systematizing together different contributions, the following nuclei of disciplinary development:

- a) The study of the constitution of living and incarnation as the constitution and condition of living beings;
- b) Forms of understanding nature, natures, sustainability, good living, development, progress and related manifestations in society as a means of action, from the students' own experiences, disciplines, sciences and common sense;
- c) The modes of existence as displays of the structural link between organism and environment, between culture and forms of relationship with various forms of life Such as the educational program of ethics and outdoor living techniques "Don't Leave Track" of the Leave No Trace Center and its

- transfer to urban environments (Lührs, 2018). Such experiences make it possible to evaluate the different disciplines that develop in terms of their damage or impact on other forms of life;
- d) Mobility as deployment in context and location, differentiating cultural manifestations that can contribute or harm to living conditions. In terms of concrete experiences, sustainable urban mobility, in addition to its direct benefits on personal processes (from organic to convivial ones), has a direct action in the carbon footprint;
  - e) Disciplinary integration for routing a systemic understanding of professional performance;
  - f) Facing the inescapable challenge of renewing and updating the ethical regulations of our existence, since even the "collective praxis in which high technology has introduced us is still, for ethical theory, nobody's land" (Jonas, 2015, p.15). Hence the educational proposals are in another starting point, not from the traditional disciplines, but rather from events and contexts where situations occur that give rise to problems or tensions between the forms of life and the conditions of development that the environment presents. For example, the scarcity of water, urbanity and habitability of the city, as a space that favours a better development of the nature that we are and, simultaneously, integrate (Lührs, 2018).

## PROPOSAL FOR EDUCATIONAL GUIDANCE ON ECO-MOTRICITY

*When we have recognised that the functional concepts of this profession of educating —needs for education, instruction, scarce resources, etc.—respond to a paradigm that is far from natural, will open the way to a history of homo educandus. (Illich, 2006, p.519)*

And what do we prioritize from the position of motor educators? We understand that this proposal, while responding to a need for change in an emergency and urgent context, assumes that educational efforts, especially formal ones, are slow in their installation and acceptance. It is with these considerations that we opt for a dialogic model (Freire and Faúndez, 2012) based on coexistence (Illich, 2006; Maturana and Dávila, 2015), on critical-liberating analysis (Dussel, 2015) and on the already mentioned ethics of care (Boff and Valderrey, 2017). In operational terms, training from eco-motricity as an alterity of educational development puts us in a recursive dynamic (Figure 2) after a greater awareness of the environment and what it behoves us to develop as inhabitants of a supra-organism in a delicate balance.

In this sense, we opt for a model in permanent dynamism, configuration and confluent deployments that recognizes and begins from the experienced, but with orientations for action from the principles and conditions set out in the previous paragraph, which involve the effective and experiential approach to situations and contexts of eco-senselogics that are configured from the emotional and affective. From there is generated the sense and the experience that will be able to be reflected from the perception to energize own and shared knowledge about what's been experienced. As a surplus and central device of learning of this process, it generates the value and sensitivity on the situation experienced and the eventual links with the context of ecological crisis and the need for a new ecological consciousness, which in turn, turns on the orientations of the action in order to renew itself cyclical and permanently in new situations of learning.

This recursive model is supported by the condition of ecological niche found in those who participate in the educational dialogue operationalized in the manifestation of the motor that is in development. For example, walking in the city or pedalling along a mountain path, jogging through a park, performing an outdoor yoga session or kayaking can be developed from this proposal with the difference that will be framed from understanding, ethical and critical principles that contribute, sustain and evidence, both the care of each

person over himself, as over others (human and nonhuman), and over the environment in general, in so much care of the otherness that is condition of a reciprocal existence.

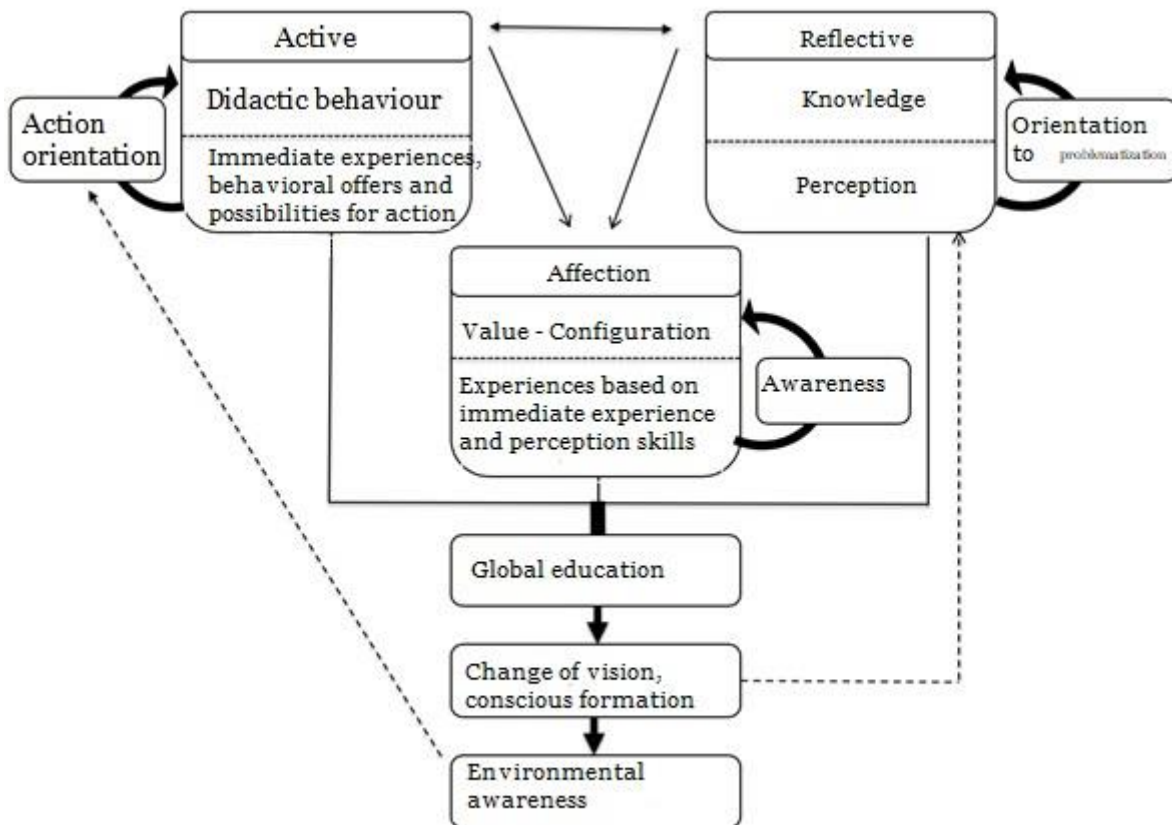


Figure 2. Proposal for teaching guidance on Eco-motricity, adapted by Hein (1997).

The proposal is supported by a contextual understanding of learning (Fremann, 2007; Thompson, 2007; Toro, 2017b), characterized by the coupling with an environment from the situated processes, embodied and enactive of those who are in the process of learning-teaching (Varela, 2016) and who are articulated with the three invariants mentioned in the first paragraph of this writing. The central focus of this proposal is the radicality of the embodied condition of cognition (cycles of organic regulation) which is expressed in a way of acting from recursiveness in a specific environment and situation (sensory-motor coupling cycles) conditioned also by other living beings similar or not with whom we co-constitute what we call the world.

## SUMMARY

We have put forward a proposal that seeks to open up a new form of relationship with the living, the environment and the planet given the urgency of the current times and the climate change in which we find ourselves. This idea might seem somewhat focused, precisely on the external and not the human. Like a kind of change of vision and centralism that moves from the human to the nonhuman. For this very reason, we want to emphasize that such a possibility is far from our purpose. Rather, we would like to reiterate that it is rather a question of entering into a sphere or relational dynamic, of reciprocity or co-existence between all forms of life, within which obviously human life is, but at the same time, given its potential for action,

coordination and anticipation, it has greater responsibility for the care and maintenance of the conditions of the possibility of living.

On the other hand, this proposal leads us to question the notion of everything that has generated or promoted, from the discipline and also outside of it any attempt, structure (conceptual or methodological) which has contributed to the current state of affairs. Thus, sports or manifestations of motor skills used and driven by academic education or present in society that have contributed both to climate change and to the accumulation or development of unlimited growth. They should at least be reviewed and perhaps abandoned if they cannot be recycled for a more relevant or sustainable ecosystem. Within this same principle is sustainability or sustenance, since beyond the understandings of one term or another, what is at the base is a post growth perspective (Maniates, 2017) that it brings us to a way of existence that recognizes its action and technological development as a real contribution to the different forms of expression that living has.

With the above, we do not want to ignore the relationship between the environmental crisis and the practices of transnational business, framed within the discourses of globalization, neoliberalism, and consumption, etc. Considering this will allow us to understand the real contribution that this proposal could have within physical education.

As regards discipline, we believe that, as an educator, it requires analysis, revision and even a revolution that allows one to be a fundamental participant in the recreation of the conditions necessary for life to become possibly emancipated from the shadows that threaten us. Human development alongside the extra human, freedom and good living must be, in a profound sense, the central object and meaning of all the sciences of the world, the vocation and goal of all the educations of the different cultures of the world. But without a planet, or rather, without the atmospheric conditions of the biosphere that makes possible the existence of humanity and millions of current species. We will not even have the opportunity to discuss whether new approaches to discipline, to the world, and less to the human, are needed.

## **AUTHOR CONTRIBUTIONS**

This paper arose from a meeting between Prof. Dr. Toro-Arévalo and Prof. Dr. Pazos-Couto, based on an initial scheme, the other two colleagues were contacted, and a summative work was done. We all contributed equally to improve and expand the work. All in all, we consider that the contributions have been totally equitable among the four authors.

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## **REFERENCES**

- Arendt, H. (2000). *La condición humana*. Barcelona: Paidós.
- Boff, L. (2000). *La dignidad de la tierra: ecología, mundialización, espiritualidad. La emergencia de un nuevo paradigma*. (1ª ed.). Madrid: Trotta.

- Boff, L. (2005). *Ecología: grito de terra, grito dos pobres*. Rio de Janeiro: Ed. Sextante.
- Boff, L., Valderrey, J. (2017). *Una ética de la madre tierra. Cómo cuidar la casa común*. Madrid: Trotta.
- Cardenal, H. (1989). *Cántico cósmico*. Managua: nueva Nicaragua.
- Castoriadis, C. (1997). *Imaginar lo imposible*. Buenos Aires: Eudeba.
- Comisión curricular, UACH. (2008). *Modelo educacional y enfoque curricular de la universidad austral de Chile*. Valdivia: Ediciones UACH.
- Dussel, E., et al. (2003). *Alguns principios para uma ética ecológica material de libertação*. En *por um mundo diferente. Alternativas para el mercado global*. Petropolis: Editora Vozes.
- Dussel, E., et al. (2015). *Filosofías del sur. Descolonización y transmodernidad*. Madrid: Akal.
- Estermann, J. (2008). *Si el sur fuera el norte. Chakanas interculturales entre andes y occidente*. Quinto: Abya Yala.
- Francisco, Papa (2015). *Laudato si. Carta encíclica*. Retrieved at 18.03.18 from [http://w2.vatican.va/content/francesco/es/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](http://w2.vatican.va/content/francesco/es/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html)
- Freire, P.; Faúndez, A. (2012). *Por una pedagogía de la pregunta*. Barcelona: Siglo XXI.
- Freman, W. (2007). *Dinámicas no lineales e intencionalidad. El rol de las teorías cerebrales en las ciencias de la mente*. En Ibañez, A. y Cosmelli, D. (edit.), *Nuevos enfoques de la cognición. Redescubriendo la dinámica de la acción, la intención y la subjetividad*. Santiago de Chile. Ediciones UDP. 27-53. <https://doi.org/10.3989/asclepio.2013.33>
- Gobierno de Chile (2017). *Plan de Acción Nacional de Cambio Climático 2017-2022*. Santiago: Gobierno de Chile.
- Gruppe, o. (1976). *Teoría pedagógica de la educación física*. Buenos Aires: Stadium.
- Hill, A., & Brown, M. (2014). *Intersections between place, sustainability and transformative outdoor experiences*. *Journal of Adventure Education and Outdoor Learning*, 14(3), 217–232. <https://doi.org/10.1080/14729679.2014.918843>
- Hein, r. (1997). *Materiale erfahrung und umwelterziehung*. En Balz, e. y Neumann, P. (edit.). *Wie pädagogisch soll der schulsport sein*. Schorndorff: Hoffmann Verlag.
- Henry, M. (2001). *Encarnación. Una filosofía de la carne*. Salamanca: Ediciones Sígueme.
- Illich, I. (2006). *Obras reunidas. Volumen ii*. Ciudad de Mexico: Fondo de cultura económica.
- Jonas, H. (2015). *El principio de responsabilidad. Ensayo de una ética para la civilización tecnológica*. Barcelona: Herder. <https://doi.org/10.2307/j.ctvt9k2sz.3>
- Lakatos, I. (1983). *Metodología de los programas científicos*. Madrid: Alianza Editorial.
- Locke, J. (1963). *Some thoughts concerning education*. London: Sage.
- Lovelock, J. Y otros (1993). *Gaia implicaciones de una nueva biología*. Barcelona: Kairos, 3ª edición.
- Luhrs, O. (2018). *Leave no trace urban program*. Libro *Handbook of research on education for participative citizenship and global prosperity*. Editores Pineda-alfonso, J., Alba-Fernández, N. y Navarro-Medina, E. (Universidad de Sevilla, España). 2018.
- Maniates, M. (2017). *Más allá de lo puramente académico. Educación superior para un mundo en postcrecimiento*. En *Worldwacht Institut* (editores). *Educación ecosocial. Cómo educar frente a la crisis ecológica*. Madrid: icaria editorial.
- Noë, A. (2004). *Action in perception*. Massachusetts: Mit Press.
- Maturana, H. y Varela, F. (1986). *El árbol del conocimiento*. Santiago: Ediciones Universitarias.
- Maturana, H. y Davila, X. (2015). *El árbol del vivir*. Santiago de Chile. Mvp Editores.
- Merleau-Ponty, M. (2000). *Fenomenología de la percepción*. Barcelona: Península.
- Ministerio del Medio Ambiente de Chile (2017). *Informe Final Encuesta Nacional de Medio Ambiente y Cambio Climático*. Santiago: Facultad de Ciencias Sociales, Universidad de Chile.

- Ministerio del Medio Ambiente de Chile (2017). Manual del Sistema Nacional de Certificación Ambiental de Establecimientos Educacionales. Santiago: Ministerio del Medio Ambiente.
- Quay, J. (2015). Understanding life in school: From the academic classroom to outdoor education. New York, NY : Palgrave Macmillan.
- Quay, J. (2016). Outdoor education and school curriculum distinctiveness: More than content, more than process. *Journal of Outdoor and Environmental Education*, 19(2), 42–50. <https://doi.org/10.1007/bf03400993>
- Ruiz de la Rosa, C. (2003). ¿Qué es la terapia gestalt? En b. Bassán (comp). *Terapia gestalt: recopilación de artículos y demás* (pp.12-18).
- Sapiains, R. (2010). El dilema del castor. Santiago: Andros.
- Sapiains A. R., Ugarte Caviedes, A. M. y Aldunce, P. (2017). Los significados de la participación para el cambio climático en Chile. *Ambiente y Desarrollo*, 21(41), 43-60. <https://doi.org/10.11144/javeriana.ayd21-41.spcc>
- Sérgio, M. (1999). Um corte epistemológico: da educacao física á motricidade humana. Lisboa: Instituto Piaget.
- Sérgio, O.; Toro, S. (2005) Hacia un paradigma de la motricidad humana. Consentido. Colección en-acción. Ed. De la Universidad del Cauca. Popayan.
- Thompson, E. (2007). *Mind in life. Biology, phenomenology and sciences of mind*. Cambridge: Harvard University Press.
- Toro, S. (2008). Memoria y evolución, pilares de una educación consciente desde la motricidad humana. *Revista profissao docente* vol. 7 n° 16.
- Toro, S. (2009). Ecos de vida y motricidad desde la experiencia austral. Belem do Pará: editorial UEB.
- Toro, S. y Luhrs, O. (2012). La universidad austral de Chile entre el accionar y el reaccionar: una mirada desde la ecomotricidad, en Leme, P. Et al (coord.) *Visiones y experiencias ibero-americanas de sustentabilidad en las universidades*. Sao paulo: agencia española de cooperación internacional para el desarrollo.
- Toro, S. y Valenzuela, P. (2012). De la acción a la enacción. Más allá del movimiento y de la educación física. *Estudios pedagógicos. Especial n° 1*: p.211-230. <https://doi.org/10.4067/s0718-07052012000400012>
- Toro, S. (2017a). Ecomotricidad y buen vivir: aproximaciones desde el abya yala. En *anales del VII Coloquio de investigación cualitativa en motricidad humana: ecomotricidad y buen vivir*. San carlos spqmh: 602-613. <https://doi.org/10.2307/j.ctvckq9fg.8>
- Toro, S. (2017b). Motricidad, en-acción y fenomenología: la articulación conceptual de la existencia. *Motricidades*, v1,n1: 78-90. <https://doi.org/10.29181/2594-6463.2017.v1.n1.p78-90>
- Trigo, S. y Pelaez, H. (2007). Aportes de la motricidad humana a la educación física. In *motricidad y persona* (1° ed., vol. 1, pp. 9-45). Santiago de Chile: Universidad Central.
- Trigo, E. (2007). *Motricidad, creatividad y ludismo*. Colección en-acción. Ed. De la universidad del Cauca. Popayan.
- Trigo, E.; Sérgio, M.; Genú, M.; Toro, S. (2012). *Motricidad humana: una mirada retrospectiva*. Colombia: Léeme.
- Varela, F. (1994). El círculo creativo. Esbozo histórico-natural de la reflexividad. En Watzlawick, P. *La realidad inventada. ¿Cómo sabemos lo que creemos saber?*. Barcelona: Gedisa.
- Varela, F. (2003). *La habilidad ética*. Madrid: Debate.
- Varela, F. (2016). *El fenómeno de la vida*. Santiago de Chile: JC Sáez. 3ª edición.
- Wattchow, B. (2016). *Socioecological educator*. Australia: Springer.
- Zubiri, X. (1986). *Sobre el hombre*. Madrid: Alianza.



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