

Post-Critical Environmental Education as a Possibility for more Sensitive Educational Practices

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ABSTRACT – Post-Critical Environmental Education as a Possibility for more Sensitive Educational Practices. This manuscript presents the contributions of sensibility in the creation of affective bonds and engagement in environmental issues. The arguments were built from the content analysis of three doctoral research studies in which the results presented data that allowed for convergent reflections: I- experiences in nature during childhood, II- experiences and affective bonds with places and moments III- aesthetic/sensory experience in the environment. We conclude by arguing for the relevance of an ontological turn in research and in the deepening of studies that investigate the interface between new ecological epistemologies and environmental education.

Keywords: Corporeal Turn. Phenomenology-Hermeneutics. Sensory Education.

RESUMO – Educação Ambiental Pós-Crítica como Possibilidade para Práticas Educativas Mais Sensíveis. O manuscrito apresenta contribuições da sensibilidade na criação de vínculos afetivos e engajamento nas temáticas ambientais. Os argumentos foram construídos a partir da análise de conteúdo de três pesquisas de doutorado, nas quais os resultados apresentaram dados que permitiram reflexões convergentes: I) vivências na natureza durante a infância, II) vivências e vinculações afetivas aos lugares e momentos, III) experiência estética/sensorial no meio ambiente. Concluímos argumentando pela relevância de uma virada ontológica na pesquisa e no aprofundamento de estudos que investiguem a interface entre as novas epistemologias ecológicas e a educação ambiental.

Palavras-chave: Virada Corporal. Fenomenologia-Hermenêutica. Educação Sensorial.

Introduction

Ever since a field of environmental education practice and research began to emerge in the mid-20th century some authors have directed their efforts at delineating the different typologies concerning specific objectives, approaches and procedures of that educational practice.

Currently various environmental education nomenclatures are being proposed and discussed – critical environmental education, eco-pedagogy, open air education – so it is no longer sufficient to restrict oneself to the term *environmental education* (Carvalho, 2004). Those different terminologies appearing in the Brazilian and international literature have become the object of many debates and research projects (Reid; Scott, 2006; Robottom; Hart, 1993, among others). Such classifications, however, are by no means static and there are many essays proposing that, in fact, they can readily coexist (Iared et al., 2011), dialogue with one another (Layrargues, 2004; Payne, 2009) and, why not, be (re) signified.

We would point out that environmental educators adopt different stances and postures within the framing of the field of environmental education and eventually may come to identify or align themselves with one or another specific school of thought. That variation, in theory and praxis, is an incentive to research in the area and imparts dynamism to the search for an understanding of the phenomenon of human beings' relations with the environment based on different theoretical contributions. It also shows the need for a more attentive scrutiny of how the correlation between the theory and practice of environmental education is taking place.

Ever since Arthur Lucas's Ph.D. thesis in 1972 there has been a differentiation of environmental education into three approaches, namely: education *in, about* and *for* the environment (Lucas, 1979). Education *about* the environment is aimed at gaining access to information whereas education *in* the environment is conducted in natural surroundings and is associated to studies of the environment and the forming of affective bonds; it is guided more by emotions than by knowledge. Environmental education *for* the environment developed in the 1990s with the growth of socially critical education and its objective was to engage people and groups in collaborative, critical and reflective processes in practical situations. Gough and Gough (2010) remind us of other approaches to environmental education such as: Earth Education which, in their view, was developed by Steve Van Matre (1990) as a contra-position to Paulo Freire's (2011) critical pedagogy or similar proposals regarding the curriculum such as critical curriculum theory and socially critical curriculum.

The first of those approaches is based on 'deep ecology', encouraging those receiving it to construct a sense of relationship with the natural world, directly interact with the other living beings in their surroundings and understand the complexity of life; it rejects the su-

perfidious perspectives of traditional environmental study. The second approach questions the individualist perspective of Earth Education holding that a socially critical curriculum emphasizes individual **and** collective social practices; in other words, the individual is seen as being within a society and is made ready to act (eco-)politically.

Observing all the different adopted stances, Canadian researcher Lucie Sauvé (2005) defined 15 lines of environmental education based on an analysis of the ERIC and FRANCIS database which configures a cartography of the respective North American and European contexts. The author demonstrates the importance of incorporating the works of Latin America and other regions of the world.

Similarly, Australian professor and researcher Phillip Payne (2009) proposed framing environmental education research based on the North-South dialogue, that is, respecting the different geo-epistemologies (Canaparo, 2009) of environmental education. That concept as proposed by Argentinean professor Claudio Canaparo (2009) refers to an approach that seeks to understand the peripheral spaces of western culture, especially Latin America. In the Brazilian scenario we have the book *Identidades da Educação Ambiental Brasileira* (Brazilian Environmental Education Identities) published in 2004 (Layrargues, 2004), as the fundamental reference work to contextualize and face the “[...] babel of the multiple environmental educations” (Carvalho, 2004, p. 15).

Research studies of this kind are important insofar as the educational objectives of our actions, projects and programs in the environmental area reveal what we seek and what kind of a society we want. That being so, in the Brazilian literature we find a vast quantity of analyses in doctoral and master’s degree research identifying environmental education tendencies and conceptions in: school textbooks (Marpica, 2008), audio-visual material (Silva, 2007), primary and secondary education teaching practices (Sguarezi, 2006; Souza, 2007), protected areas literature (Valenti, 2010), programs of non-governmental organizations (Kogeyama, 2017), and others. Furthermore, there is a project in Brazil on the State of the Art of Environmental Education (EArte) involving three universities (UNICAMP, USP and UNESP) that has consolidated a database of the academic production in environmental education and in various research efforts investigating different conceptions, practices, contexts and contents associated to that field.

Generally speaking, those projects formulate different denominations for environmental education tendencies such as conservative, romantic, reformist, emancipatory, transformational, pragmatic and critical and they do not diverge greatly from the *in, about* and *for* model Lucas (1979) proposed, already explained above. It is important to underscore that environmental education practices often mix those different epistemological lines, sometimes deliberately, or for lack of a sufficiently profound theoretical base or through merely reproducing activities already contemplated by environmental education. As the practices are diverse, so too are the pathways for qualifying environmental education teachers which may be via formal, non-formal or even

informal education and range from short courses to intense reading in teaching practice and theory or in the graduate courses that exist for that area. As could be expected, that results in a different choices, visions and practices among the different lines described above.

Thus, the main aspect we observe, especially in the Brazilian scenario, is that there is a certain tension or even a schism among the persons who align themselves with the different educational schools of thought and all the more so among those who favor the critical environmental education line. That is because there are many practices and qualifications that are ingenuous or actually inappropriate for environmental education and consequently, those educators who acquire more profound theoretical knowledge and seek for better-orientated practices feel the need to differentiate their performance from those other practices that have no interest in social transformation via education and have no defined political stance.

In that sense, this article aims to present and discuss the importance of sensibility for the creation of affective bonds and engagement with environmental themes among different groups of people. The manuscript is based on the data and joint reflections of three doctoral researchers obtained in different contexts, but all based on the same interpretive paradigm. The mutual inspiration of the different research studies, the exchanges that took place in the research group the authors participated in and the perception of similarities among some of the generated data fostered a convergent discussion. Thus, we were able to reflect on the aspect of sensibility in educative activities in the field of environmental education whose horizon is the construction of sustainable societies.

The Aspect of Sensibility in Post-Critical Environmental Education

Over the years there has been a broad appropriation of what has come to be known as critical environmental education giving rise to new discussions endeavoring to delimit it. Some educators considered that critical environmental education was one that followed Marxist principles and those of the Frankfurt school. In that context we can quote the work of Eunice Trein in 2012 entitled: *Critical Environmental Education; critical of what? (Educação ambiental crítica: crítica de quê?)*. In it the author situates the Marxist references that orientated the critical analysis of society, of the material appropriation on the part of certain social groups and the exploitation of human labor power. The author's thematic presentation identified the discussions of the above theme and the context of the insertion of environmental education into formal education and teacher qualification processes, acknowledging the occurrence of educational practices that failed to contribute to any break away from the actual societal models.

We do not intend to delve into the divergences of the critical line in relation to the others but, instead, going beyond them, we intend, in

our discussion to defend an aspect we consider to be highly important, namely, the greater need to work on the sensibility aspect in environmental education. In that ambit we consider post-critical environmental education to be that which motivates creative, reflective and corporeal capacities and the emergence of affectivity and dialogue, moving away from the purely rational and hegemonic perception of today. It is post-critical because by valorizing feeling, bonding and otherness, it expands horizons and leads us to other possibilities for being and existing in the world with the non-humans, in a horizontal relationship or, as Sheets-Johnstone (2011) has named, in a corporeal turn. That author argues against the historical understanding that the brain is superior to all the other organs in the body or to the body as a whole. The corporeal turn is also an ontological turn because it brings with it another understanding insofar as it negates the duality constituted around reason/emotion or the hierarchy of the mind to the detriment of the body. It is a perspective that brings in the aesthetic dimension of the body for analysis in its aspect as experience.

Hart (2005) argued that reflexivity must involve sensibility in the methodological construction of environmental education research directed at obtaining a better response, awareness of the process and of its epistemological, ontological and political positioning. That being so, we have endeavored to establish a pathway to overcome dual ontologies or those strictly focused on the being, to incorporate proposals that unify the understanding of human, non-human and world beings, denominated flat ontology (Harman, 2005) or symmetrical ontology (Steil; Carvalho, 2014).

Based on that understanding, the affective turn (Clough; Halley, 2007), corporeal turn (Sheets-Johnstone, 2011) and ontological turn (Holbraad; Pedersen, 2017) are contemporary philosophical orientations that question certain dualities that stem from an anthropocentric vision. Based on those movements, Payne (2014) and Payne et al. (2018) present empirical evidence of the non-fragmentation of aesthetics~ethics~politics; there is no disassociation of the body engaged and immersed in the world and the daily positionings, (here understood as being political). Steil and Carvalho (2014) use the term ecological epistemologies to refer to the set of theoretical actions that seek to disrupt dualities.

In this text the notion of aesthetics is understood to be the driver of an affective sensory experience that is the basis for interpreting our perceptions and connections with other human and non-human beings (Iared; Oliveira; Payne, 2016). Johnson (2007) considers that, historically the aspect of the quality of experience has been reduced to the superficiality of the subjective judgment and attribution of value and that has led to its emptying and prejudice in regard to its importance in the cognitive process. Similarly, Gadamer (2005) identifies how that “[...] subjectivation of the aesthetic” came to be understood as being disconnected from everyday practices and quite often, only associated to the field of art and the perception of beauty.

Many thinkers (Dewey, 1958; Johnson, 2007; Merleau-Ponty, 1999; Shusterman, 2008) have re-signified the concept of aesthetics, basing it on a relationship with the world; that is, it is the visceral connection with the world and intimately linked to the process of meaning-making. Shusterman (2008) proposed the term somaesthetics defined as attention to the somatic experience as a forming element of the cognitive process and therefore related to meaning-making.

Some works in the field of environmental education (for example, Marin, 2007, Payne et al., 2018) have affirmed the importance of bringing the center of the discussion an education that considers sensibility, given that the aesthetic experience evokes the transcendence of the rational and immediatist in our understanding as beings-in-the-world. Furthermore, aesthetics opens up possibilities for the imagination, for creativity, affectivity and the questioning of our society's anthropocentric postures.

From that perspective there is an integration of body, mind and culture in which the body is conceived as a sensory locus of aesthetic appreciation. Johnson (2007) is also insistent in affirming that his understanding of meaning-making goes beyond presuppositions or the formation of elaborated concepts. In it, the author encompasses imaginative and creative processes, senso-motor skills, affects and emotions stemming from experiences with/in the world. Thus, in this article the conception of sensibility refers to encounters with the materialities of nature such as: stone; plants; animals; sea; sun and other non-humans, in which there is an opening for the emergence of feelings, emotions, affectivities. Our theoretical support is drawn from authors who help us to gain a better understanding of the affect, the sensory, the corporeity and the fusion between the beings and the world.

Research in Focus

There now follows a brief presentation of the three doctoral research studies whose results have subsidized the reflections (present) in this article. All of them were orientated by an interpretive paradigm but each one presented its own distinct research question and methodological procedures within the broader frame of the study context. Those results made it possible to obtain a convergent reflection that identifies the heightened importance and valorization of environmental spaces and practices that foster a more sensitive education.

Research with primary and secondary education teachers

The first research study investigated the qualifying process and creation of identities among primary and secondary education teachers in their aspect as environmental educators in the context of the Municipal Environmental Education Program (*Programa Municipal de Educação Ambiental de São Carlos - ProMEA*), in the schools network. The program was unfolded in 2011 and 2012 by the municipal govern-

ment of the city of São Carlos, São Paulo with the aim of institutionalizing environmental education actions, projects and programs in the municipal schools and consequently in the society of São Carlos as a whole (Di Tullio, 2014). To that end, teachers in primary and secondary education were selected to act as environmental educators in the school shift in which they were not engaged with their regular classes. In this article the data analysis focuses on the sensitive aspects that contributed to their qualification in the vision of the teachers themselves. To identify those aspects, we reviewed data previously gathered by means of interviews and focal groups. Those techniques were selected because they make dialogue among the teachers and between the teachers and the researchers feasible.

Research on Values in the Cerrado

The second research study was conducted in the years 2011 to 2015 with the objective of understanding the formation of ethical and aesthetic values in the Cerrado biome (Iared, 2015). The researcher opted to define the participant public by inviting a group of persons with a background of affective involvement with the Cerrado and their academic profiles proved to be a preponderant factor among those who agreed to collaborate with the study. The two techniques used for data gathering were: semi-structured interviews and walking ethnography. The walks in the Cerrado were carried out with the same participants as the interviews, roughly 18 months after interviews. Subsequently eco-narratives were elaborated in an endeavor to describe the affective and corporeal responses during the experience. In this study we intend to emphasize the emergence of the affective, sensory and emotive responses identified during the data gathering.

Research on Human Relations with Urban Green Areas

The third research study took place in the city of Salvador in the period 2014 to 2018 (Hofstatter, 2018) and addressed the question of lived experiences in urban environments, the creation of affective bonds between persons and places and the ramifications in the constitution of adults of their lived experiences in regard to nature during childhood. This research was designed to gain an understanding of people's relationships with biodiversity in urban contexts and what pathways were travelled and experienced by persons who have affective bonds with urban nature. Achieved through the involvement of the researcher with a Project for the implantation of a trail in the Mata Atlantica Memorial of the Federal University of Bahia (UFBA), where a process was unfolded to qualify undergraduate students as monitors, that is trail guides, and they were the subject of the research. The data gathering methodology option was the walking interview, based on recordings of the interview and narratives elaborated both by the researcher and the interviewees.

That is one of the ways of working with walking ethnography. The participants were requested to choose a place in Salvador with which they had some kind of affective bond and that was where the walk or some other activity that the person liked was carried out from a phenomenological perspective of lived experience and constitution of the being based on contact with urban green areas.

Dialogues among the Research Studies

During the review of the set of three studies, we used content analysis, understood here to be a set of techniques applied to verify and interpret registrations of spoken or written communications (Bardin, 2010). To that end, the data selected were those that enabled us to reflect, together, on the importance of early and continued contact with nature for the constitution of human beings' sensibility. Based on that evaluation, emergent categories were constructed and that made it possible to identify the subjectivities that the participants manifested. We would underscore it involved an interpretative process on the part of the researchers, focused on the three investigations. Nevertheless, with each investigation, in the methodological procedures of each thesis, the analysis process was conducted jointly by the three participating individuals. Gergen and Gergen (2006) consider that qualitative research, from a post-modern perspective, shows a crisis of representation, which considers any isolated interpretation devoid of context or of the participation of the person concerned to be highly limited. Accordingly, in addition to considering the perspective of the research's subjects, we accepted the idea that those perspectives should mold our own perspectives and references and that we should mutually overlap not only in conducting the research but also in the interpretation of the data.

Results and Discussion

A dialogue was established among the research studies themselves and of them with the respective literature and the following categories emerged: I) lived experiences of nature in childhood; II) lived experiences and affective bonds with places and moments; and III) aesthetic/sensory experiences in the environment. Such elements overlap in several of the registrations because they are associated; however, we opted for that particular structuring to enable greater clarity in the discussion of the data. For the purposes of facilitating a logical understanding we identify the respective research from which the excerpts were taken preceded by the way in which the statement was obtained.

I) Lived experiences with nature during childhood

The results indicate that living with connections with nature is important for the formation of affective bonds in urban environmental experiences and lived experiences with nature in childhood was a recurrent aspect as exemplified by the following accounts:

Already in my childhood, my contact with nature was playing in that neighborhood full of trees which as time went by suffered urbanization, paving of the streets, first with cobbles or 'monkeys' as people in some places called them. [...] And how the green areas in the neighborhood gradually disappeared, and that was even something we brothers and sisters used to talk about (Interview, research study on values in the Cerrado).

What makes me like this, and other green areas, is that they remind me of aspects of my early childhood (Interview, research study on human relations with urban green areas).

We can perceive the importance green spaces have for people's engagement with the world and the way in which each one behaves in the face of life. Some believe that the love of nature they cultivated influenced their choice of a profession and their wish to share nature and teach it to younger people or their wish to look after other living beings as we see below:

Whenever I could I used to climb to the top of a tree to admire all the surrounding environment. You could say that was the time when I became aware of the need to care for the environment, especially the animals (Interview, research study on human relations with urban green areas).

Just being there and reliving strong memories and what it was that led me on the professional path that I chose for my life. I realized the trail I had followed from then on whether teaching about nature or in my work as a biologist (Interview, research study on human relations with urban green areas).

It was after I got into Biology, wasn't it? Because with that, there seems to be a kind of commitment. If you are a biologist, then you must respect nature. For me it's a pleasure, but it also became my workplace (Interview, research study on values in the Cerrado).

Other statements reveal how important childhood is in establishing values and the way we relate in the world. Another outstanding perception is how vital it is for emotional equilibrium and interior peace to maintain those bonds with the natural world, as the excerpts below confirm:

There is much more in me of nature experienced in childhood and youth than I could ever have imagined (Narrative, research on human relations with urban green areas).

It has made me think about why I like 'being in the woods' so much and has made me relive scenes from my childhood that I had not remembered for a long time (Narrative, research on human relations with urban green areas).

Thus the results indicate that childhood plays a fundamental role in people's aesthetic-ethical-political formation and therefore it deserves attention in environmental education research and practices. Payne (2018) insists on the vital importance of incorporating eco-phenomenological practices into children's environmental education. That author identifies a gap in studies that address children's aesthetic experiences in nature with a post-critical approach.

It is interesting to note that in the three research studies, the school was never mentioned as a reference for the formation of ethical and aesthetic values with nature. We can only conclude that most schools limit themselves to activities unfolded exclusively in the classroom environment whereas, as has been shown, affective bonds are more effectively constructed in lived experiences in the presence of nature. Therefore, as McClaren (2009) and Russ and Krasny (2015) have underscored, we need to think about expanding the spaces of formal learning and qualification.

In a study with seven so-called 'green families' composed of twelve adults and eleven children in the age range of 8 to 16, Payne (2005) identified the powerful influence of the families' ecopolitical stances, commitments and interests in the education of the children.

In consonance with that author's perspective but at a much earlier date, Freire (2010, 1994) in his works *À sombra desta mangueira* (In the shade of this mango tree) and *Pedagogia da Esperança* (The Pedagogy of Hope) mentions various moments of his life and his relations with family and friends, reflecting on the importance of those lived experiences in the construction of his identity and his interpretation of his present-day world. In a similar way the three research studies underscore the role that family and the intergenerational experiences play in the construction of affective and emotional bonds in/about-for nature. In that vein, we would the importance of greater integration of school, family and community in the sense of deliberately working on those values in the educational processes.

My father had an amazing small farm; there was waterfall at the bottom and we used to play there almost every day in the holidays, you know? [...] I always paid attention to the trees, the animals I loved it [...] I really liked animals a lot. I helped my father on the property, vaccinated his cattle. When a pig... When anything happened, something got hurt, I was the one that used to go to help treat the maggot sores [myiasis], those kinds of things, I loved it (Interview, research with primary/secondary education teachers).

The teachers interviewed in the first research study established a direct relation between their lived experiences in the environment during childhood and their motivation for working as environmental educators in the schools. However other researchers have controverting opinions in that respect (Gough, 1999). Some argue that it is possible to identify the kind of experience that can produce persons with sensibility in regard to nature or commitment to the environmental cause (Palmer, 1998; Hsu, 2009), while others declare that people's narrations of their experiences do not represent an absolute reality but instead they are experiences that have been (re)interpreted or (re)signified in the light of their present moment (Chawla, 1998). That being so, we consider that the lived experiences in the midst of nature can have made important contributions to the formation of the teachers' environmental sensibility without there necessarily being a direct relation between

them, because that would be underestimating the complexity of human experiences in the course of life (Payne, 1999).

II) Lived experiences and affective bonds with places and moments.

The second and third research studies identified some places in which affectivities abound such as urban green areas or other less anthropized areas like zoos, natural areas, urban squares, smallholdings, small or large farms, and beach houses:

A childhood memory.... In regard to nature, it is more associated to areas like... like Parks, isn't? Natural areas. Even though I spent my whole childhood in São Paulo, we always made an effort to go to Cantareira, go to some place like that, more associated to that area. Because my father always liked things like woods, trees, so he always took us to get to know those parks (Interview, research study on values in the Cerrado).

What is something really strong, unimaginable, is the sea; something that today is really absent. But growing up in Rio de Janeiro, the beach was a place extremely present in our life, wasn't it? Every weekend, every holiday, in the holidays, we spent them at the seaside. (Interview, research study on values in the Cerrado).

We remember again, the stories of our childhood, the flavors and the games children played in the squares, gardens and at the beach (Narrative, research on human relations with urban green areas).

Experiencing nature, not just at the Zoo, makes me feel at peace (at home). The energy in it and all the simplicity it bears makes me dependent on such great loveliness (Narrative, research on human relations with urban green areas).

The reference to childhood and adolescence continues to be present in this second emerging category. Tuan (2013) considers that the adult's perceptive categories are replete with emotions that stem from their first experiences in life while Merleau-Ponty (1999, p. 24, our translation) holds that "a child understands far beyond what it is capable of saying, responds far beyond what it could define". Those bonds cannot be created if they are only lived sporadically and that is why green areas are so necessary in urban ambits, which are where most people are living (Oliveira, 2004).

Russ e Krasny (2015) discuss the need for urban environmental education not only to foster human wellbeing but also to ensure environmental integrity in the cities, given that cities are complex environments in which socioenvironmental problems are concentrated but at the same time they generate opportunities for reflection, the development of technology and learning. Some of the indications gleaned from research studies permeated this subject:

So here, the Cerrado is a reality very nearby because it is, oh, I don't know, say, 15 minutes from my classroom. You can easily go there, stay there in silence. Stop life for a bit and take a look at things around you (Interview, research study on values in the Cerrado).

My relationship with nature, in the aspect of my formation as a person, has been constructed since childhood with the collaboration of relatives and, in it, urban green areas made their mark on me personally (Narrative, research on human relations with urban green areas).

We underscore the role of nature in urban space because it is nature that provides that more everyday accessible contact for people who live in the cities. Furthermore, nature evokes people's affective memories when they revisit streets and squares, trees, parks where they grew up and/or experienced pleasurable moments together with their loved ones.

We found that the connection with nature favors the creation of a commitment to the world. That being so, we affirm that given the importance of lived environmental experiences in the constitution of human beings, we cannot fail to face, reflect on and (re)implant more life in urban spaces, bearing in mind that most children today grow up in cities. That means too, we cannot ignore the perspective of Payne et al. (2018) whereby we need to overcome a strictly rational form of teaching and invest in lived experiences as a form of establishing bonds and knowledge.

The Cerrado research study identified informal spontaneous moments together with family and friends such as collective leisure, play, fun activities, being with friends and relatives, the influence of mother/ father/ grandmother/ grandfather, holidays, weekends and calendar holidays as being highly important moments for the formation of environmental sensibility. That aspect was also evident in the research into teacher qualification insofar as it was observed that the family is an important reference in aesthetic and ethical value formation as the following excerpts from interviews reveal:

I believe that environmental education, love of nature, the preservation of the planet, all of this that we do, we are not born with that. I think we learn it [...] it's seeing someone working with it with great fondness, isn't it, doing it all with great affection. [...] My father always used to pick up a handful of earth and say 'anyone who has this, a little earth, cannot go hungry'. So the question of planting, my father always planted a lot and I grew up planting too (Interview, research with primary/secondary education teachers).

During various years of the time I have been working in this school I have tried to bring in a little of my personal reality for them [...] So I have a kitchen garden which is something that comes from the family... (Interview, research with primary/secondary education teachers).

I always paid a lot of attention to trees, animals, I always liked them a lot but with the environment it was a different kind of relationship. It was that attitude of my father's, a farmer, to take sustenance from the environment, exploit it, there was no question of preservation involved (Interview, research with primary/secondary education teachers).

Just as in the preceding aspect we would underscore here the role of the family, as in Payne's (2005) study, and the absence of the school. For decades now, the field of environmental education in Brazil has

been problematizing a gap in the school curriculum. Many studies have pointed out (and continue to do so) that the approach to environmental education in the schools is sporadic and superficial. In regard to that point, we problematize the rigid decontextualized curriculum that in no way favors the creation of bonds with the location. Furthermore, the very physical spaces of the school (classrooms, desks and corridors) are not propitious for the body-mind to feel, savor, hear, perceive or touch.

Some authors discuss the (re)signification and (re)construction of values from one generation to another based on a reflection on, and interpretation of their experiences (Dillon; Kelsey; Duque-Aristizabal, 1999; Payne, 2010). That perspective is in harmony with Gadamer (2005) who proposes that a given subject does not abandon his or her horizon to submit to the horizon of another but instead amplifies it so that it can integrate the other thereby producing a new concept. We can also remember the education of attention referred to by Ingold (2010) who holds that no one is passive in the face of knowledge transmission or of an accumulation of representations. Ingold discusses the role of real-time personal experiences and cognition in the being's learning and formation processes.

III) Aesthetic/sensorial experiences in the environment.

One aspect of sensibility notably present in the above citations is that of the aesthetic/sensorial experiences in the environment. Steil and Carvalho (2014, p. 164) state that “[...] it is impossible to dissociate the mind from the body, culture from nature, knowledge from experience. From an ecological perspective, to know, it is necessary to be immersed in the material in the world by means of a continuous engagement with the environment”. From that, it follows that we must think about educational activities that boost corporeal learning because we can see how important lived experiences are in the creation of affective bonds that drive the desire to care and to learn.

Ah, because it is so lovely [laughter] because it is the vegetation that I like the most. [laughter]. Because I love walking in the Cerrado, I love seeing the colors of the Cerrado, smelling the aromas of the Cerrado. So that is it. It activates the bonds, the emotional channels (Interview, research on values in the Cerrado).

Many of the smells, too, they smell different from city smells. Smell of vegetation. At night I think the smell changes. And you discover things, learn things (Interview, research on values in the Cerrado).

As we arrive, it looks like an abyss, full of green, of Cerrado, of life, some rocks. So I sat there for two hours. And that was a very strong feeling. disturbed me lot. I said to myself. “this here is very beautiful! It's very important... I dunno... A load of animals live there, loads of plants are there. That is very important because just look at what I'm feeling right now looking at all this” (Interview, research on values in the Cerrado).

Being in contact with nature is being nature ourselves, not seeing nature as something external to us but as our very own selves. That conversation we had during that wonderful sunset was intimate, transforming and

connective (Narrative, research study on human relations with urban green areas).

Grün (1994) considers that, historically, the school has only valorized the cognitive aspect of the teaching-learning process, disdaining its axiological dimension. That does not mean that the school as an institution has not brought with it, or can still bring with it, contributions towards creating bonds with the environment. However, for that to occur planning and a series of actions are necessary with the clear intention of reflecting on and (re)constructing those values. The affective/ontological turn proposal needs to occupy space in the curriculum, in the teacher qualification process and in the very concept of the built spaces in schools because, as Steil and Carvalho (2014, p. 163) have stated, “[...] Our way of inhabiting the planet cannot be separated from our way of knowing it”.

Another aspect of sensibility that was identified as important in the lived experiences of the teachers participating in the first research was their pleasure and happiness at working with environmental education and the satisfaction they felt with the results obtained. The qualification and performance of the educators in the daily round of the school are more effective when they involve happy, pleasurable situations that make it possible to renew their hopes and dreams of transforming the school and society and favoring changes in the educators’ personal and professional values and practices.

So, for my life it has been highly gratifying, because in that way, when you put your shoulder to the wheel, you feel useful [...] When I did that work with the tires, the garden of tires, it was very good [...] very gratifying, you know, doing that for the school. I felt the school was more harmonized [...] doing that work with the children liberated me (Interview, research with primary/secondary education teachers).

Because it’s something that I really like, I always said that working as an environmental educator, for me, was like a safety valve, it was a way of getting out from the school, getting away from all those problems that accompany the school. [...] so it was something that I have always liked doing so much, it wasn’t something I did as an obligation, I did it gladly. It was delightful! (Interview, research with primary/secondary education teachers).

Freitas (2004) refers to happiness as a challenge to the aesthetic aspect of the educational process. In the speech of the interviewed teachers, we can see that the project gave them satisfaction precisely because it provided the possibility of *getting out of the school* that is of changing the manner of their performance, because everyday school practices do not usually generate such feelings.

In the second research study, during the walk in the Cerrado, happiness seemed to be related more to being *among friends* in that environment which reflected in the interaction, in the laughter, in the distraction and relaxation. At the end of the walk the participants told how they had quite forgotten that they were participating in a data gather-

ing moment of a research investigation and raised the question as to whether that forgetfulness would jeopardize the research. Apart from that they commented how such activities should take place more often, which called our attention to the importance of *deliberately* incorporating such multisensory, informal practices into the environmental education curriculum.

Being among friends was a pleasure for her [...] She kept up the leadership of the group of four as if she were some kind of monitor, pointing out any features that were different such as a velvety leaf that is quite common in the Cerrado. She often called on people to see typical Cerrado fruits explaining that they were not easy to eat because of their thick outer shells that were hard to crack (Narrative, research into values in the Cerrado).

In the research study carried out in Salvador, there was also happiness manifested on remembering what had been lived and experienced in/with nature and wishing to offer it to future generations:

Remembering happy moments with much learning in them made me want (even more) to multiply those feelings for other people, especially children and adolescents who are potential multipliers here, in the present and in the unexpected future (Narrative, research into human relations with urban green spaces).

Our data show that critical thinking and a political posture can be constructed in different ways. For example, contact between humans and the other links of nature can create strong bonds that generate a feeling of defending the environment and that can be leverage for new learnings of societal ways of political participation and problem solving. What we are signaling here is the potential of the sensitive aspect and of phenomenology and how it goes beyond a mere epistemological innovation in environmental education. We propose an affective and ontological turn that radically revitalizes and reorganizes our ways of thinking and performing environmental education. As Steil and Carvalho (2014) explicitly state, it is not a case of redesigning a theoretical unity but, instead, of presenting new horizons of understanding so as to overcome the dualities and understanding nature as if it were something alien or external to human beings.

Kincheloe and McLaren (2006) defend critical post-modern research because, in their perception, social inequalities need to be studied, debated and faced. Furthermore, they underscore how capitalism cannot be naturalized in society and that we should always be questioning that which is apparently obvious. Nevertheless, their perception is of a world in transformation and far more diverse and, in that sense, they argue in favor of greater opening in the references and methodologies of critical research.

Thus, we defend an amplification of corporeal forms of learning with valorization of the aspect of sensibility in the formation of engaged human beings for the emergence of a post-critical environmental education. Artistic lived experiences and practices are excellent opportuni-

ties for working multisensoriality. Humans and many other living beings use their whole bodies as a form of interlocution and expression.

The informality of these lived experiences in nature is an important aspect observable in the collected data because, based on it, the various affective bonds are constituted that we bring along with us throughout life and which also translate as engagement with and in the world. According to Oliveira (2004, p. 25, our translation) the child “[...] needs space, in which to know the world, nature, exercise its movements, work on its meanings, feelings, and time”. Horton et al. (2014) conducted a study on children and young people’s everyday walks in England and identified how important that form of mobility is in the formation of bonds with the city, of spatiality notions, in cultivating relations of friendship (sharing games and stories) and for social and cultural identity, reaffirming once more how extremely important everyday spaces and living experiences in nature are in the constitution of human beings.

In that vein, Carvalho and Mhule (2016) propose an environmental education ‘outside the box’ orientated by the education of attention proposed by Ingold (2010). The researchers report some situations of educational practices that ignore the aesthetic experience as a pillar of the cognitive process and that belittling of theirs may be indicative of a gap in the reflective, creative and affective competences necessary for the education of autonomous and critical subjects.

The negation of activities considered to be ingenuous in environmental education such as embracing a tree or making a holding-hands ring runs the risk of distancing environmental education from more corporeal and affective practices, from learning with the body and multisensoriality ever more frequently discussed and publicized in contemporary education (Iared; Oliveira, 2017). Not that such practices are the only or the ideal ones. Like any other educational integrational activity, they need to be thought through and problematized in the light of the context in which they are being worked with, duly respecting the openness of those being educated or constructing conditions so that there should be a yielding to learning and experiencing with the body.

From that perspective there is no dissociation of aesthetics-ethics-politics during corporeal practices in environmental education. In the publication *Fields of Green* that Marcia McKenzie, Paul Hart, Heesoon Bai and Bob Jickling organized in 2009, the authors divided the chapters into four blocks one of which was dedicated to ‘The Sensuous’. According to them, environmental education can potentially contribute towards the overcoming of the hegemony of the rational/conceptual and legitimize the inclusion of emotional and affective experiences.

Pink (2009), for example, argues that sensation and reflection are indistinguishable and that the separation of the body for doing and the mind for knowing implies the objectivation of the corporeal experience by rationalization. Furthermore, Steil and Carvalho (2014, p. 163, our

translation) affirm that “[...] our way of inhabiting the planet is not separate from our way of knowing it”.

For some authors (Fox; 2015; Gildersleeve, 2017; Lather; St. Pierre, 2013) research from that perspective shifts from the epistemological to the ontological and in this case ontological monism, a generalized form of holism or indicator of non-anthropocentrism or even of actual ecocentrism.

The flat conception of things, including human beings, rather than a hierarchic one is of post-critical educational interest (Payne, 2016). In the same vein, Fay (1987) argues that the basic question of critical social science is its ontology and not its epistemology. That author considers that there is an excessive deep-rooted rationalism and that it manifests itself in ontology of activities.

[...] in order to take these difficulties into account, deep changes in conception need to be introduced at the level of its ontological presuppositions. The ontology of activity needs to be supplemented with an ontology of embodiment, tradition, historicity, and embeddedness, and its account of reason needs to be modified to reflect the inherent limitations of reason to unravel the mysteries of human identity and to make the hard choices with which humans are inevitably faced (Fay, 1987, p. 212).

We believe that the principles and presuppositions of environmental education denominated ‘critical’ may remit to aspects that need to be revised such as the hierarchization and compartmentalization of knowledge and the reinforcement of dualisms like: reason x emotion; mind x body; affect x politics. We would agree with Latour (2013) that we need to improve our recognition of the hybrids that constitute us socially. In that author’s view we live in a world in process, in movement, made up of presence and not permanence and he adds that “[...] the world of the senses and the world of the being are the same unique world” (Latour, 2013, p. 127, our translation).

A recent study being conducted by Alan Reid and Marcia McKenzie, with the title *Palgrave studies in education and the environment* foresees the publication of a series of theoretical and empirical studies on the interface between education and the environment. In the first publication of the series, authors Jickling and Sterling (2017) edited a book with different studies that set us thinking about what has been under construction in these last decades in regard to the terminology of education for sustainable development or sustainable education or environmental education. According to those authors “[...] whatever has been achieved in this period, it is not sufficient (Jickling; Sterling, 2017, p. 02) and they argue in favor of a deconstruction and then a reconstruction of environmental education to respond to the ecological crises and the present-day educational imperatives.

In consonance with that proposal, the discussions in the three research studies led us to reflect on the importance of re-thinking or

reframing (Payne 2009) or deconstructing to reconstruct (Jickling; Sterling, 2017) post-critical environmental education. It is therefore necessary to identify the gaps, reorganize the theoretical conceptions and the ways to face those challenges.

Final Considerations

Some propensely critical educational identities and tendencies are being questioned for being anthropocentric, for example, or for accepting Cartesian dualisms, separating mind-body and society-environment. There are educators who take critical education to be that which fosters a reflection and a critical posture in day-to-day positioning in the face of life. The understanding is maintained here that educational practices need to have social transformation-emancipation potential but with a greater degree of flexibility in regard to theoretical references and the methodological pathways adopted to achieve those results. Here we have signaled the contribution of sensibility to making it possible to get beyond just rethinking epistemological fundamentals. Sensibility is a powerful driver for the emergence of a post-critical environmental education and for the affective/corporeal/ontological turn.

Reflecting on Che Guevara's famous phrase *one must toughen up but without losing tenderness* and applying it to our context, we know that critical environmental education brings with it important features that we need to toughen up because we cannot desist from fighting against social injustice; against authoritarian manipulative governments; against the appropriation of capital and environmental resources by hegemonic economic groups in power; against hunger; against environmental degradation; in favor of health and universal public education; in favor of democratic and participative governments and in favor of better living conditions. But let there be the tenderness of the relations of human and non-humans; of valorization of learning with the body; of affect; of eye to eye; of the connection with the Earth; of contemplation and of the childish games.

The objective of analyzing together, the three research studies was to tell of the contribution the aspect of sensibility makes to environmental education practices. The arguments set forth are not intended to debunk initiatives that advocate informative campaigns or the development of a participative political citizenship, but, instead, to defend the incorporation of educational practices that contribute towards an ontological turn that conceives aesthetics-ethics-politics as indissociable and towards a society-culture-nature relationship less anthropocentric.

Other research efforts should be encouraged to investigate gaps and the possibilities for (re)constructing the environmental education curriculum and practices that incorporate those discussions with a view to obtaining more significant social-environmental-affective-political transformations².

Notes

- 1 For more information: <<http://www.springer.com/series/15084>>.
- 2 Educação & Realidade informs that the publication of this study was partially financed by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES) - Finance Code 001”.

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