Philosophical-Critical Environmental Education:
a proposal in a search for a symmetry between *subject* and *object*

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Abstract:
This paper aims to develop a study on environmental education from philosophical and practical bases. Philosophical considerations being established after critical analysis of some philosophical schools who have taken the environment or the Individuals as a matter of primary concern; practical considerations arising from our experience in the university environmental movement. Thus, we intend to express our thinking towards the discussion about critical Environmental Education in a philosophical perspective called philosophical-critical Environmental Education, which aims to seek a harmony, a balance between subject and object, from a philosophical view-point, and as a consequence, between society and environment, from a socio-political perspective, in addressing the socio-environmental issue.

Introduction

In this article we work with philosophical aspects of Environmental Education (EE) in the search of another way of thinking education and environment. Our intent is contributing to discussion in the Environmental and Behavioral Sciences in relation to human behavior in its environment, when we refer to the socio-environmental issue.

To this end, we will establish the philosophical assumptions of social-environmental issue, describing their ontological and epistemological problems as a consequence of the fact that issue is equivalent to the problem of human knowledge. In this sense, the concepts of cosmological vision, holistic approach and historical process, from ontological point of view, and the concepts of fields of wisdom, properties of the universe, constructivism, dialogic attitude and transdisciplinary action, from epistemological point of view, become essential.

Philosophical aspects of EE are discussed by several authors (Farhi-Neto 2006; Leopold 1986; Toadvine 2009). We intend to bring to light the relations among those philosophical questions, the collective attitude of subjects, and the education.

Discussions are not unknown on EE with their nuances and conceptions (Fien 1993; Huckle 1999; Sauvé 1996). To Fien,

> [EE is] an across the curriculum approach to learning that is useful to individuals and groups in coming to understand the environment with the ultimate objective of developing caring and committed attitudes that will foster the desire to act responsibly in the environment. Thus, environmental education is concerned about knowledge, and also feelings, attitudes, skills and social action (Fien 1988, 10).

The goals of EE are: to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas; to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; to create new patterns of behaviour of individuals, groups and society as a whole towards the environment (Fien and Tilbury 1996, 13).

The EE presents several streams of thinking (Sauvé 2005): traditional and recent (holistic, bioregionalists, praxis, critical, feminist, ethnographic, eco-educational, sustainability). In contrast to traditional (conservationist) EE that is based on assumptions that fragment the worldview, on individualist-behaviorist's educational actions,

> in the belief that the transmission of knowledge generates changes in behavior and society, in the overlap of rationalism to the emotion, of the theory to the practice, in the knowledge divorced from [everyday life], in the disciplinarity, in the individualism, in the descontextualization of the local and the global, in the technicist dimension above of the political dimension (Silva 2009);

the critical EE relates to the educational activities that can contribute to the transformation of the social-environmental crisis.

The approach to EE usually can occur in three ways (Fien and Tilbury 1996, 16; Huckle 1993, 21; Le Grange 2002, 83): education *about* the environment (for which the central thrust is 'education for environmental management and control'), education *in/through* the environment (for which the central thrust is 'education for environmental awareness and interpretation'), and education *for* the environment (for which the central thrust is 'education for sustainability'):

> Education *about* the environment emphasises knowledge about natural systems and processes. Education *in/through* the environment emphasises learners' experience in the environment as a means of developing learner competencies and values clarification capacities. (…) education *for* the environment has an overtly critical agenda of values education, social change and transformation through action based exploration and involvement in resolving environmental problems (Le Grange 2002, 83).

According to Le Grange , "education *for* the environment has served as the basis for more recent discourses that have developed within EE such as education *for* sustainable development (ESD), education *for* a sustainable future (ESF) and education *for* sustainability (EfS)" (2002, 82-83).

Although we have in mind that more structured universal philosophical schools exist and who have taken the environment or the individuals as a matter of primary concern, we observe under a philosophical point of view a breakdown of symmetry in the society-environment (or subject-object) relationship subtended in the interaction between human beings and nature. Thus, these important philosophical schools are not yet enough to combat the social-environmental issue as shown by the current state of degradation and environmental consciousness in which we live; in this sense, we must deepen the analysis on this issue posing that relationship as a matter of primary concern.

Furthermore in the existing literature, we did not find explicitly a discussion that takes into account the social identity of the Environmental Movement (EM) with the philosophical aspects of environmental issue focused on an Educational Environmentalization. Thus, we present an argument that would establish the collective identity of the EM, considering it as a popular movement with their *objective needs of collective nature*. We defend the thesis that, for an effective education of individuals in environmental issues, it is essential the knowledge of collective needs with the philosophical foundations of the theory of knowledge.

Considering these assumptions, in an endless search for making the development of a social-environmental rationality possible, this paper comes across the prospect of the *environmentalization* of society, aiming at the achievement of a collective action that will mobilize the social subjects to embrace the social-environmental cause. As a result of our experience in EM at the State University of Feira de Santana (UEFS), Brazil (Cavalcante and Miltão 2008a, 2008b, 2008c; Miltão 2011, 2012a, 2012b), in conjunction with other ones in EE of some countries that we studied (Carvalho 2001, 2005; Daily et al. 1997; DiLorenzo 1992; Fien 1988; Fien and Tilbury 1996; Geli et al. 2003; Guevara et al. n.d.; Le Grange 2002; Tirone and Nunes 2007; Whelan 2002), as well as from an important theoretical study on the EE, this paper intends to express our thinking towards the discussion of critical EE in a philosophical perspective. To reach our objective, we will in the first section establish the philosophical assumptions of social-environmental issue. In

the second section, we will discuss the EM and its social identity considering our experience to establish its *objective needs of collective nature*. In the third and fourth sections, we will discuss the role of EE in creating an awareness for people in his/her environments, and will explore concepts related to EE, to conclude that we should take over a critical and philosophical attitude in relation to social-environmental issue.

Philosophical Assumptions for the Social-Environmental Discussion

Ontological Problem of Human Knowledge

As a starting point, let us consider that human beings are part of nature, part of the universe, part of everything that exists and to meet their needs, including its survival, the individuals act inside and operate within nature. This action, which is not merely biologically determined, is manifested by the incorporation of experiences and knowledge produced and transmitted from generation to generation, through education and culture, which do not allow the younger generation to return to the point from which the preceding generation started. (Andery et al. 1988).

These actions of human beings within nature are in "a permanent process of mutual transformation: (....) the production process of human existence" (Andery et al. 1988, 12) and point to a central question: as part of nature and of the universe, how can humans be able to, in essence, understand and know the being of things? (Ontological problem). We will refer to this central question as the first philosophical limitation, which requires a view of knowledge that is cosmological, holistic and historical. Cosmological because it must take into account the spatial and temporal dimensions of the universe. Holistic because it advocates the importance of a full understanding of the phenomena rather than an isolated analysis of their components. Historical because it takes into account the facts that preceded the current knowledge, not only in the *internalist view* (which seeks the internal aspects of knowledge), but also in the *externalist view* (which seeks to understand the cultural and social influences to which knowledge is submitted). From this perspective, knowledge is defined as a product of the "historical process that has its existence expressed by the cosmological [and holistic] behavior of the individual as part of a social whole" (Abramczuk 1981, 39).

Accordingly, from an ontological point of view, we have a tentative answer to this problem that includes the realistic and anti-realist conceptions. Anti-realistic to the extent that, of the phenomena that emerge at our consciousness, we cannot apprehend the objects in itself (the *noumena*), and we only establish their representations, since the *cosmological* and *holistic* view of knowledge leads to acceptance that "(...) everywhere to the insight that what the various sciences call the 'object' is nothing in itself, fixed once for all, (...)" (Cassirer *apud* French 2001, 2). Realistic to the extent that, of such phenomena, we grasp their structural components while primary qualities (the relations of symmetry), between the objects in itself, because "history suggests that important structural elements of theories are preserved" (French 2001, 1), which is guaranteed by the *historical* view of knowledge, inasmuch as, "It is important to understand that the regularities of nature are real" (Davies 1992, 82). In this sense, in certain form, we follow Kant when asserting that "What we cognize in matter is nothing but relations (what we call its internal determinations are but comparatively internal). But there are some self-subsistent and permanent, through which a determined object is given" (Kant 1900, 182).

Thus, in relation to the general ontological aspects of *existence* and *independence* of the thing in itself and of their properties, the attempt to answer the ontological problem that we defend takes the following conception: the thing in itself, as well as their properties *exist*, however, are incognoscible, therefore, the objectification of it and of some of their properties *depends* on our subjective representations; only the structural properties are *independent* of the subject ("independent of anyone's beliefs, linguistic practices, conceptual schemes, and so on" (Miller 2005, 2)), being their representations the expression of reality, because they are cognoscible.

Epistemological Problem of Human Knowledge

In general, the whole body of ideas and several types of knowledge, regarded the heritage of humanity, is the product and the expression of the relationships that the human being establishes with nature, in which he/she is inserted. Knowledge is derived from human needs of growth, evolution and development and from universal explanation of things. It is also the expression of a given historical moment. Thus, the knowledge related to the world, to the universe, is established through different but complementary types of manifestations: common sense, popular, theological, philosophical, scientific, artistic, literary, technological and technical. Further, the vastness and amplitude of knowledge, associated with the human beings intellectual limitation, establish what we will refer to the second philosophical limitation: being contingent, that is, limited (spatially and temporally), how will the individual be able to acquire the full broadness of human knowledge? (Epistemological problem).

To face the challenge posed by this second philosophical limitation, we should understand that the process of knowledge acquisition occurs through the understanding of the properties of the universe manifested in the phenomena. This statement implies the potential need to construct a view of the whole body of human knowledge which does not lead to fragmentation, or to a subdivision of it; but quite the contrary, in a complementary and richer way, it leads for the contributions to the *particular wisdom* or *fields of wisdom* (Cruz 1940). *Particular wisdom* should not be mistaken for *wisdom of the particular.* The former refers to the *fields of wisdom*, whereas the latter concerns with the acquisition of certain specificities, or fragments of the phenomenon. So we have that the *particular wisdom*, or *field of wisdom*, provides the cosmological (general), holistic and historical knowledge, in principle, since we have the cultivation of a certain property of the universe that is reflected in the phenomena of nature. Moreover, the *wisdom of the particular* indicates reduced wisdom to the extent that it cultivates certain characteristic of a phenomenon.

A field of wisdom (Cruz 1940) is a systematic set of knowledge concerning objects or phenomena that manifest common properties (a group of phenomena), and such knowledge is systematized from specialized investigation which has as its aim to produce new knowledge to replace the older one. As stated earlier, the essence of this concept – the field of wisdom – does not indicate or imply the fragmentation of knowledge. This is because we have to consider that a field of wisdom does not takes ownership of a phenomenon, but rather it is related to properties of the universe that are present in the phenomena. Thus the different phenomena of nature can (and really should!) be cultivated by all fields of wisdom through several supradisciplinary actions (Farias and Miltão 2005; Herrán-Gascón 2004), which will ensure the pursuit to the unity of knowledge.

Accordingly, from an epistemological point of view, we must have a tentative answer to this problem that considers (and goes beyond) rationalist and empiricist conceptions - rationalistic because it takes into account the *a priori* representations of the subject; empiricist because it takes into account the *a posteriori* content of the object - that is, we must have an attitude that is *constructivist*, *dialogic*, and *transdisciplinary* considering the ontological fact that the individual is part of the universe what implies that the individual is part of a *social* whole.

Thus, in relation to the general epistemological aspects of the origin, structure, methods and validity of knowledge, the attempt to answer the epistemological problem that we defend takes the following conception: knowledge takes place jointed by the **reason**, which is its structure, form of sensibility and understanding, conceived of the individual (subject), and by the **sensation** and **perception**, which are its content, conceived in the object so that its origin, their methods and its validity can be established when we represent, of the thing in itself, their properties, including the structural.

Social-environmental Issue and Philosophy

We intend to understand the social-environmental issue from a different philosophical perspective: as the relationship of "the forms of appropriation of the **world** and **nature** (our emphasis) [by human beings, through] the power relations that have been inscribed to the dominant forms [of human action]" (Leff 2002, 17), and considering the fact that "our instinctive empathy with the earthly surroundings remain stunted in most contemporary persons" (Abram 2010, 42). We claim that the social-environmental issue, exactly as the issue of human knowledge itself, presents the ontological and epistemological problems. Ontological because, being part of the universe, under which essence, under which quality, human beings will constitute their understanding and knowing of the being of **world** and of **nature**? their *forms of appropriation* of the **world** and **nature**? Epistemological because, being knowledge so vast and broad, in which way, under which configuration, under which organization, and through which conceptions, human beings will establish their *power relations* with the *forms of appropriation* of the **world** and **nature**?

Consequently, the method for a deeper social-environmental understanding and for a building of a social-environmental rationality presumes a different philosophical standpoint, i.e., the dialogue among different fields of wisdom and a systemic view that composes them (transdisciplinary standpoint), considering an eyesight of knowledge that is cosmological, holistic, historical, constructivist, and dialogic since the social-environmental problem is reflected in all phenomena of nature, by their different nuances. Thus, we are taking into account that the roots of the social-environmental issue are philosophical (Leopold 1986).

In this sense, the social-environmental rationality is characterized by its complexity, since the inter-systemic nature of their scientific, economic, social and political relations is not the expression of logic, but the effect of a set of interests and social practices that articulates different material dispositions which give significance and organization to the social processes by means of certain rules, means and ends socially constructed (Boeira 2002; Leff 2002). Therefore, in relation to the subject-object interaction, the expression 'rationality' pertains to the individual (the subject), while the expression 'environmental'

pertains to the object, comprised in their 'social' relationships. As a consequence, the social and political interaction between society and environment takes place. An interaction or relationship between human beings and nature (Brown and Toadvine 2003; Foucault 1973; Hardin 1968; Leopold 1986; Smith 1999; White 1967) already considered by many thinkers, like Aristotle (van der Schyff 2010, 107); like Marx, that establishes

> The universality of man appears in practice precisely in the universality which makes all nature his inorganic body, both as being (l) the immediate means of subsistence, and (2) the matter, object and instrument of his vital activity. Nature is man's inorganic body; nature, in itself, is not the human body. Saying that man lives by nature means that nature is his body, with which he has to maintain in a continuous process not to die. Saying that the physical and spiritual life of man is linked with nature has no other meaning than that nature is linked to itself, for man is part of nature (Marx 1844, 24);

and as Merleau-Ponty that punctuates

> Visible and mobile, my body is a thing among things; it is caught in the fabric of the world, and its cohesion is that of a thing. But because it moves itself and it sees, it holds things in a circle around itself. Things are an annex or prolongation of itself; they are incrusted into its flesh, they are part of its full definition; the world is made of the same stuff as the body (Merleau-Ponty 1974, 284).

Thus, we claim that the social-environmental issue is the issue itself of human knowledge treated succinctly above, with their inherent ontological and epistemological problems. The pursuit of knowledge, including environmental, academic and popular, is the subject's own quest for knowledge. So, trying to understand the social-environmental issue is trying to understand the very question of human knowledge. In this way, it would be appropriate to consider the social-environmental complexity from this philosophical standpoint that will enable us to understand the interaction between *subject and nature* (from a philosophical point of view) or the interaction between *society and environment* (from a social-political point of view). With this conception, we may be able to surpass the dualism (Colwell 1997), the anthropocentrism (Foreman 1991; Manes 1990; Manson 2000), the scientism (Olson and Lang. 2005; Popper 1963; Sorell 1994; Sterling 2003), the missionarism and relativism (Price 2005; Sterling 2003), and the territorialism (Sterling 2003) that may still be found in social-environmental issue.

EM and its Social Identity
EM at the State University of Feira de Santana - between Desires and Possibilities

The environmental question in Brazil is an issue very discussed, although its effects have not yet become sufficiently effective. The history of Brazil presents various issues related to the environment. The name (dated at 1511) comes from a tree found in South America called 'Brazil wood', which was extracted to near extinction. The official history is marked by political negotiations that began in the period of colonization by Portugal in XVI century, marking a Eurocentric perspective, since in that region there were already native tribes that lived in balance with nature. Among such negotiations, we have the very process of colonization,

> the peaceful Independence of Brazil and the establishment of its own monarchy in 1882, the Abolition of Slavery in 1888..., and the change into a liberal republic in

1889 [under the mantle of positivism]. More recent events include the rise of Populism in 1930, a military *coup d'État* in 1964 [under the aegis of nationalism and capitalism], and the return to democracy after 1985 (Nascimento 2010, 23-24).

However, there were social movements in alternative to the official process:

the Catholic attempt to evangelize the Native American Guaranis and establish Jesuit *missões* as a new experiment in politics around 1609...[;] the frustrated initiatives such as the establishment of *Quilombo dos Palmares* as an independent confederation of African runaway slaves between 1602 and 1694... [; the] colonization of the northeastern part of the country and parts of the Amazon by Dutch Calvinists between 1630 and 1669... [;] the attempt to apply the ideas of key philosophers of the European Enlightenment to create a new republican nation in the state of Minas Gerais in 1789 [Minas Conspiracy (*Inconfidência Mineira*)] (Nascimento 2010, 24);

and the movement of the *cangaço*,

who was a social movement emerged in the Brazilian Northeast in the late nineteenth century, result of class differences in the region [where] social inequality in the rural always brought about divergences to the village backcountry [being that the] abuse of power ... of the landowners over the peasants was a major aggravating factor for rural people to follow life as *cangaceiros* [finding] in the *cangaço* a condition of parallel power.... (Andrade 2005, 2).

In this context, emerges the environmental issue in Brazil. From colonization; genocide of indigenous cultures; slavery; degradation of flora and fauna; depletion of natural sources due to extraction of minerals and timber until impact of modernization, environmentalism struggles incessantly "to defend democracy and defend the environment" (Nascimento 2010, 26). E.g., in 1970 is formed the Xapuri Rural Worker's Union which brought together rubber tappers who lived in the Brazilian Amazon region that struggles in favour of their culture and means of subsistence; in 1970s and 1980s "indigenous peoples became more active politically and (...) in 1987, several tribes were organized nationally in the Alliance of Peoples from the Forest (APF) and in the Union of Indian Nations (UNI) around... land demarcation and protection of their reserves" (Nascimento 2010, 26); between 1979 and 1985 was formed the Landless Movement (*Movimento Sem Terra* – MST) who struggles for agrarian reform in the country and has a guidance of marxism and nationalism, and support of liberation theology; and in 1970s was created the National Movement of People Affected by Dams (MNAB), whose watchword is 'Water and energy are not commodities'.

Taking in consideration the continental size of Brazilian territory we could quote endless regional and local examples of social movements of significant importance. Along this line we briefly consider the environmental issue in Feira de Santana and special

discussions in its State University[1]. The city is "located in an intermediate zone between the coast of Bahia, which is moist, and the interior, in semi-arid sector, in the northeastern region in Brazil" (Miltão et al. 2006, 57); its Municipal Human Development Index (IDH-M) was 0.740 in 2000. It has several environmental problems arising from its location in the Polygon of Drought and from historical anthropic factors: expulsion in the XVII century of Indians (of the tribes Aimoré, Paiaiá and Tapuias) and *Quilombolas* (runaway slaves of the *Recôncavo*) who lived in the vicinity of the 'eyes of water'; flagellum of the drought; grounding of lakes (eyes of water); destruction of native forests; extraction of minerals and timber; little infrastructure of urbanization to trade; urban growth affecting the city's water supplies and basic sanitation services; myth of modernity (Miltão et al. 2006, 57-193). By contrast, sectors of civil society organize in alternatives to cope with local problems: appears in city in 1967 the 'Community Organization Movement' (MOC) created to provide "technical, social and legal assistance together to farmers, ranchers and rural workers" (Miltão et al. 2006, 123); in 1990 the 'Water and Life Movement' (*Movimento Água e Vida*) that struggles "in defense of water and health, composed of teachers, intellectuals, technicians and leaders of various segments, performing activities for health improvements, against the degradation of the environment and in defense of the lakes, rivers and springs" (Miltão et al. 2006, 96); in 1994 the 'Agricultural Family Schools Integrated Network of Semiarid' (REFAISA), legal representation of the Agricultural Family Schools (EFAs), created with the objective of strengthening the overall development of young people, families and rural communities, through the continuous ground work and critical and liberating education, in a practice-theory-practice relationship that point alternative to the rural as a good place to live (Borges 2010).

In UEFS the environmental issues have occurred over its history (Cavalcante and Miltão 2008b, 2008c; Miltão 2011). After three decades, one can affirm that there are objective conditions that enable an open dialogue between different actors of the university and of society, including: worldwide sense by the environmental care - this aspect is present throughout the community, either implicitly or explicitly, because it is a recurring theme in the media world; and latent desire of the university community to live in a pleasant *campus* - this aspect is present, if not in throughout the community, in a representative portion, as many testimonies of community members expressed.

In addition to these conditions two political aspects have been presented:
> the need of Feirense's society itself understand their problems to rectify them and to develop fully and autonomously, bearing in mind that the interest of other countries only strengthens the thesis that Brazil, their regions, their states and

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[1] The relationship between the city of Feira de Santana and UEFS was the object of study in Miltão, Araújo and Salomão (2008) which established "the historical development of the Northeast [of Brazil] and the participation of [State of] Bahia. From then is highlighted the role of Feira de Santana as spillover and, in particular, as the… UEFS can be included in this process by considering an undergraduate degree course in Applied Physics [with an obligatory discipline in all the habilitations proposed called 'Physics of the Environment', and including a particular Habilitation named 'Energy and its Application' (Miltão et al. 2006)]" (Miltão, Araújo and Salomão 2008, 318).

> municipalities have their wealth, that arouse large geopolitical interests, and that are often 'hidden' in problems that these regions present (Miltão et al. 2006, 195);

and the fact that

> although some technological issues are typical of developed countries, the process of economic globalization on the one hand, and the consequences in the environment, on the other, compel that the contemporary individuals, the general public, should have a reasonable basis to understand and grasp the advance of science (Miltão et al. 2006, 40).

As is known (Birket-Smith 1965; Carvalho 2004b) culture arises/contributes from/to the set of values involved in the creation of the individual, their perceptions and preferences. Thus, those objective conditions and political aspects had been embodying of some roles played by culture, subculture (involving nationalities, religions, racial groups and geographic regions), and social class and will condense in the thoughts of each individual of the university community of UEFS in discussions of environment. We see the underlying pluralistic character of the EM of the UEFS, responsible for the tensions and cross-cutting actions that constitutes them. Moreover, in general, in this movement the three forms of EE (Fien and Tilbury 1996), and the positivism, marxism, postmodernism, eco-feminism, liberationism, constructivism and dialogism are underlying.

To understand how this EM took place at the university scenario a local Seminar, in 2007, was held. The goals: raise awareness, mobilize and provoke the academic community to confront the social-environmental issues included in its context; discuss, understand and analyze the problems and potentials related to these issues; consolidate the formation of an Environmental Standing Committee for discussion of these issues at university; and build an agenda of priorities towards the Environmental Work Plan of the university. The methodology was participatory, and so were formed nine thematic groups: solid waste; water and water waste; paving and drainage; EE and curricular environmentalization; landscaping, and areas of coexistence and leisure; environmental comfort; fauna and flora; energy; culture, art and environment. This Seminar provided to all involved (hundreds of students, public servants and dozens of university teachers) a retrospective of the history of actions around EM and EE at the University. Date of at least 21 years the first initiatives on the environmental issue. It became clear that the environmental issue is not new among teachers/researchers, research groups and students; much has already been and have been accomplished. (Cavalcante and Miltão 2008a).

In the UEFS the discussion of EE and the action of EM still show up as peripheral. Appear as a fragmented universe of punctual and sometimes mismatched actions in which different groups, different researchers and the individuals of university community attempt to weave their own relationships and understandings of what is 'an EE and EM'. As well as was evident that many actions are losing strength in the dynamics of university life, when it finds no echo and sufficient structural and institutional support, when faced with the turnover and mobility of researchers and research interests, and with the constant change of profile of students and courses.

We know that until then, we are faced with an incipient moment, but that can trigger consequent critical actions in the pursuit of educational and sustainable environmental policies. There is a need of linkages between research groups, projects and researchers; that the university community and social practices of EM understand the different forms

of knowledge production (academic and popular); that participants of EM in different posts of the university political-organizational structure maintain the energy and self-awareness; EM to have a feasibility, critical sustainability, and consequence; to a harmonious coexistence between different pedagogical concepts; and appropriate EE of the university community (Cavalcante and Miltão 2008b).

Considering these characteristics of the EM and EE of UEFS which were similar to other EM (Haluza-DeLay 2006, 40; Jesus 2008, 8; Nascimento 2010), questions arise: how to sensitize the community to implement their agenda? how to achieve a sustainable social-environmental development if the courses do not present critical and philosophically this theme in their curricula? how to educate our teachers and students to develop their activities taking into account social-environmental issues? how can we provoke and consolidate the community participation? (Miltão 2011). To answer these questions is essential that this community knows the *objective needs of collective nature* of its EM, that we have an educational environmentalization and that philosophical issues of environment are understood.

Whilst there are these EMs in Brazil, national or local, the "environmental activism did not rely directly on philosophical reflection - which may explain the lack of coherent principles or theories to orient environmental action" (Nascimento 2010, 28). So, the existing theoretical reflections on the environment occur in a descriptive manner, and in relation to EE, this lack of dialogue with philosophy leads to problem of existence of the "conflicting pedagogical approaches based on different philosophical views - constructivism, liberationism, eco-feminism, hermeneutics, behaviorism and postmodernism, among others" (Nascimento 2010, 30).

Objective Needs of Collective Nature of an EM

Touraine (2000) explains the concept of a social movement as one with proposals for structural social change in a given context, aiming at expanding its field of action towards the transformation of the whole society for which improved and different conditions of collective life are desired.

Considering the ontological claim that the individual is part of a social whole, we advocate the need to understand how participants in a social movement acquire the notion of their collective needs, those relations that are self-subsistent and permanent, and which constitute the foundation for the awareness of their social being, in other words, their *social identity*.

For these demands and collective needs, that we will consider as *relations of structural properties while primary qualities*, and which allow the establishment of a social identity for a social movement, we call *objective needs of collective nature* - the *needs* are *objective* because they represent the concrete demands for a social movement, i.e. because they represent the expression of reality (which allows a *critical* attitude of the individual), due to the fact that they are cognoscible; the needs are *collective* in *nature* because they are related to a collective being, the social movement. In the case of an EM (with their different conceptions), we assume that this social identity will allow their participants to act collectively as a social movement, which will thus be the practice of the awareness of their 'social being'. Then they could identify ways and strategies to mobilize people and groups in the environmental debate, could understand proposals for structural social

change in a given context, and could accept that movements are expressed through actions that mediate between the dilemmas of the system and the everyday life of people.

The complexity of these aspects, added by the condition of humanity and of belonging to nature reveal that an EM is, in principle, a specific popular social movement. (Haluza-DeLay 2006, 30; Tres 2006, 68). So we will describe the *objective needs of collective nature* (Miltão 2012a, 2012b) that help us to justify an EM (naturally others may exist, depending on the different geographical, cultural, philosophical, political, and ideological conceptions of the individuals involved). In relation to the:

i) philosophical-ontological nature of the human knowledge: the need to show that the subject is inseparable from the object (Cruz 1940; Susi and Ziemke 2005), that subject and object are inextricably entwined (Schopenhauer 1847), meaning that the unity or meta-language for knowledge will only occur as a result of a cosmological, holistic, and historical behavior of the individual integrated into the universe. This will enable the ownership "of the 'imponderables' that reveal the substantive domains that support the 'environmental wisdom'" (Souza-Lima and Heemann 2005, 176).

ii) philosophical-epistemological nature of human knowledge: the need to conform to the existence of an ethical limit concerning the excessive expansion of science and knowledge, and that they should be more cautious and humble in their claims and certainties, and realize that the recognition of errors helps to find the light in the production of knowledge itself (Popper 1963); meaning that the knowledge production requires a behavior of the individual that is constructivist, dialogic and transdisciplinary.

iii) epistemological-collective nature of human knowledge: the need for a comprehension that the EM should also be considered as a type of community of practice (Haluza-DeLay 2006, 70, 186; Wenger 1998, 14) and that so it must be also "focused on people and on the social structures that enable them to learn with and from each other" (Wenger 2006, 4), even if this knowledge is generally considered "largely tacit, practical and unsystematic (…) partial and situated, grounded in activist practice, arising from concrete engagement in social struggle, and embedded in specific times and places" (Conway 2008, 12).

iv) historical nature of human knowledge: the need to understand that, when perceived as a historical process, knowledge contributes to the development of the social-environmental rationality, when establish an environmental formation to the creation and strengthening of environmental units of production. What will permit the "focus on current and potential environmental situations while taking into account [that] historical perspective" (Fien and Tilbury 1996, 15). The EE overcomes the insufficiency of the concept of social-economic education in respect to how concrete is the link between the social relations of production and the ideological frameworks (Leff 2002, 46).

v) historical nature of humanity: the need to show that the recognition of milestones in the history of civilization reveals periods of significant changes in the patterns of consumption and production (Philippi Jr. and Malheiros 2005).

vi) ecological nature of humankind's place in the biosphere: the need to demonstrate that exist an interdependence of all organisms within ecosystems in the interior of the biosphere (Næss 1973) and that the balance to be achieved requires respect for all life forms.

vii) scientific nature of humankind's place in the biosphere: the need to demonstrate that human societies are contingent upon the biosphere's behaviours and their limits of operation, and that to maintain the economic expansion it is necessary to increase

the energy supply and improve the efficiency of its use, considering the finiteness of non-renewable energy sources, with their thermodynamic limits as well as the pollution generated by energy use (Machado 1998).

viii) architectural nature of humankind's place in the biosphere (environmental comfort): the need to demonstrate that human societies face a major challenge in relation to the areas they occupy, so that these areas become as efficient as possible (Tirone and Nunes 2007), in a sense that they meet people's needs without bringing additional damage to the environment.

ix) economic and social nature of humankind's place in the biosphere: the need to understand that the environment is not an externality, which will allow, for the social-economic formation, a capture of new rationalities that transcend the utilitarian calculus of the market (Souza-Lima and Heemann 2009, 176).

x) society's ideological character, and social class oriented nature: the need to overcome the social class limitations revealed to humans when they realize the limits to which they are submitted in society (Gutiérrez-Pérez 2005; Miltão 2009). This overcoming would enable the social coexistence in the pursuit of harmony, transcending the market-economicist view of society, that is, the view of a society divided by social classes.

xi) economic and social nature of society: the need to understand the process of social reproduction as an articulated whole: economic processes, natural processes, and super-structural processes (Leff 2002, 46-47).

xii) economic and energetic nature of society: the need for an integrated view of the energetic issue, since the energetic vector and energetic services (Furtado 2004; Miltão et al. 2008), if treated as goods originated from the economic and technical transformation of natural resources, bring a vision that disregards energy as a construct, as an entity of nature and an intellectual category, which is essential for human life, for all the individuals in society (Hinrichs and Kleinbach 2001; Machado 1998).

xiii) social-environmental nature of economy: the need to ensure negotiation and agreement between the parties involved in any planning, considering that not every social group that suffers the consequences of planning is represented in the development of these plans, nor the different theoretical perspectives necessarily represent specific social interests (Machado 1998). Gutiérrez-Pérez (2005) calls our attention, for example, to the dilemma of the Sustainable Development discourse (Philippi Jr. 2005; Reigota 2007) when, in the connection of "the idea of development with the idea of sustainability, limits and restrictions to the exploitation of resources are placed and free markets are open in favor of the economic growth" (Gutiérrez-Pérez 2005, 191).

xiv) social-humanistic nature of economy: the need to show that clean water is a finite good, even in the areas of the globe where there is plenty of it and that nowadays, clean and fresh water is unavailable for one sixth of the world population (a billion people).The implication is the need to assume that water is a social-environmental right, not a commodity subjected to market forces (Fica Piras 2008; Philippi Jr. and Martins 2005).

xv) physical nature of the energy issue: the need to convince society to use energy as efficiently as possible, given that the stock of high quality energy is continuously decreasing in the universe (Hinrichs and Kleinbach 2001; Machado 1998; Miltão et al. 2008).

xvi) thermodynamic nature of the energy issue: the need to use alternative energy originated from clean energy sources, to minimize the current environmental issues, as

well as the harmful effects to the biosphere[2] (Hinrichs and Kleinbach 2001; Miltão et al. 2008).

xvii) ideological nature of education: the need to overcome the contradictions inherent in society that are revealed to human beings, while students, as they make their way into education (from kindergarten through university) (Pereira and Forracchi 1987). In this process of schooling, they realize that the struggle for social projects such as the EM is related to conflicting social forces, which reflect the above mentioned contradictions.

xviii) socializing nature of education: the need to show that education is a political process, hence it is not a neutral practice; that the educational meaning exists for all those involved in the pedagogic practice (educators or students); and that the essence of the educational process is the dialogue (Freire 1970). This socializing task is performed by social institutions such as the educational system, religion, media and cultural industry (Zioni 2005, 35).

xix) cultural nature of education: the need to show that culture, art and environment are inextricably connected, in such a way that the term culture should be understood as a construct in time and space, that follows the dynamics of societies and embraces everything regarding behavior patterns, beliefs, institutions, intellectual and artistic manifestations, which are the characteristics of a social group and are transmitted collectively (including ways to talk, to walk, to die, to be born) (Ángel Maya 1996; Birket-Smith 1965; Bourdieu 1987; Carneiro 2008; Carvalho 2004b).

xx) nature of the subject and their different identities: the need to understand that a social movement should not constrain the emergence of different identities (gender, race, religious, sexuality, political, environmental, etc.) in the subject when has been established its *social subject* or *social identity*, since "identity cannot be opposed to social participation and to the exercise of social roles; by the same token, it cannot be confused with then" (Touraine 1988, 82). As defined by Touraine, "the subject (...) becomes the only possible foundation for legitimate and effective social critique, when the self-evidences, unquestionable convictions, social roles and identities are swept by an ongoing process of social change and disintegration" (Gorz 1996, 279).

The understanding of the *objective needs of collective nature* constitutes an essential step in consonance with the ontological claim that the individual is part of a social whole. So understanding these *objective needs* will allow the establishment of a social-environmental identity in the individuals which will permit the construction of an aware EM. Thus, the principles of EE related to:

x (...); Examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in different geographical conditions; (...);

x Promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems; (…);

x Help learners discover the symptoms and real causes of environmental problems;

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[2] For a further understanding of global warming and the question of its increase be due to natural or anthropogenic activity, see references Molion (2006, 2007a, 2007b, 2008).

x Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills; (…) (Fien and Tilbury 1996, 14-15);

will be covered.

Visions and Conceptions of Environment and EE

Bringing to the lumen the interaction between human beings and nature, at this point let us consider some philosophical schools that deal this issue.

Considering the phenomenological school, according to Husserl, who was sure "that the rationalism of the eighteenth century, (...) was *naïve*" (Husserl 1970, 16) and yet allowed the acceptance of the positive sciences or "philosophical and ideological positivism (…) [that] decapitates philosophy" (Husserl 1970, 7, 9), "*pure or transcendental phenomenology will* become established, *not as science of matters of fact, but as a science of essences* (as an *'eidetic'* science); it will become established as a science which exclusively seeks to ascertain 'cognitions of essences' and *no 'matters of fact' whatever.* (…). *…the phenomena (…) will become characterized as irreal*" (Husserl 1983, xx); it "deals with *ideal* objects (…) that (…) merely have *validity*" (Marías 1967, 405, 406), with ideas of things in its essence and thus it is considered a form of idealism (Marías 1967, 409), although in the initial phase it has distanced itself "from the idealistic as realistic perspective" (Enciclopédia… 1976b, 4544). It conceives a life-world, "for us who wakingly live in it [as] always already there, existing in advance for us, the 'ground' of all praxis whether theoretical or extratheoretical… [whose] world is the universe of things, which are distributed within the world-form of space-time and are 'positional'" (Husserl 1970, 142); and whose "waking life is being awake to the world, being constantly and directly 'conscious' of the world and of oneself as living *in* the world, actually experiencing [*erleben*] and actually effecting the ontic certainty of the world" (Husserl 1970, 142-143).

We thus have a limitation of the ontological point of view, because in general it disregards the realism and of the epistemological point of view, because it minimizes the contribution of empiricism; and thus the symmetry between subjects and objects is lost, in principle. What can also be seen when Husserl asserted that: "The truth is that all human beings see 'ideas', 'essences', and see them, so to speak, continuously; they operate with them in their thinking, they also make eidetic judgments – except that from their epistemological standpoint they interpret them away" (Husserl 1983, 41). In terms of environment, "Husserl characterizes [it] as a world of entities that are 'meaningful' to us in that they exercise 'motivating' force on us and present themselves to us under egocentric aspects" (Beyer 2011, 15). We observed that an utilitarian attitude and an everyday practical concern emerge of this view of 'motivation' that arising from "certain forms of intentional consciousness and intersubjective processes" (Beyer 2011, 15), "by conceiving the mental experience in isolation from any surrounding physico-biological environment" (Smith 2001, 15). Moreover, a difficulty emerges "in accounting for the existence of harmony among the different worlds which arise when 'world' is relativized to your or my subjective appearances" (Smith 2001, 17).

Considering the realist phenomenology of Scheler, it "is characterized by a rich ontology that rejects the empiricist restriction of entities or objects to the physical and the mental" (Gordon 1999, 350); it "studies the structure of consciousness and intentionality, assuming it occurs in a real world that is largely external to consciousness and not somehow brought into being by consciousness" (Smith 2011, 10). In terms of environment,

> the human being is without a doubt a practical being, seeking to master and manipulate its environment to achieve desired results and avoid future suffering. (...). Yet, human beings are not necessarily tied to practical affairs and have the ability to comprehend and regard the world in terms of their essence or being. (…).The move from the practical to the philosophical is motivated by wonder, a [loving] concern for the world as it is in itself, a question of what the world means. (…). Love is understood by Scheler here in terms of the Christian sense of agape, loving as giving (Davis and Anthony 2011, 4).

We observe a contemplative attitude of the environment emerging from this 'loving participation', as if we should only reverence the world because it has an inexhaustible depth and secrets. Here, we have too a limitation of the ontological point of view, because it disregards the idealism and of the epistemological point of view, because it maximizes the contribution of empiricism; and thus the symmetry between subjects and nature is broken down.

In his turn Heidegger examines the phenomenology in his philosophical hermeneutics (Heidegger 1962, 1988), and "with his paradoxical assertion that, although entities *are* independently of human beings, the *being* of entities is not apart from human understanding, … thus established a new voice in regard to the debate between realism and idealism" (Stepanich 1991, 28). Thus, he has collapsed "the ground between realism and idealism and has achieved, therefore, not so much a balance between the two as the negation of the both" (Stepanich 1991, 28). For the other hand, epistemologically he considers the 'human entity' (Dasein) as an example of Being-in-the-world, an "entity which each of us is himself" (Heidegger 1962, 27), and that is always the being engaged in the world, emerging out of his environment (Heidegger 1962, 94); going beyond rationalism and empiricism by rejecting the distinction between subject and object as the starting point of epistemological reflection. We note on the ontological viewpoint that we must seek a position that includes the realistic and anti-realist (idealist) conceptions, without negating them. On the epistemological point of view, it is necessary to explicit how the human entity will know the objective needs of collective nature, to be engaged in the world.

Considering the school of existentialism (Kierkegaard, Nietzsche, Karl Jaspers, Gabriel Marcel, Sartre, Merleau-Ponty, Simone de Beauvoir), this designates "the philosophical position that sustains the priority of the existence in relation to the essence" (Enciclopédia… 1976a, 4459). Thus, if the thing in itself exists, the apprehension of its essence does not exhaust its existence, because "the essence does not necessarily imply the existence" (Enciclopédia… 1976a, 4459) – the essence establishes the potential being, while the existence establishes the reality of being. In existentialism (Kierkegaard and Nietzsche), "the truth is not objectivity, but on the contrary, subjectivity (...) [because] is not the adequacy of understanding and of the thing, but a form of belief, a personal option, a choose lived" (Enciclopédia… 1976a, 4461); in this sense, to Sartre, "the [human being]

is first of all, a project that one lives subjectively" (in Enciclopédia… 1976a, 4462), and to Merleau-Ponty,

> in so far as I have hands, feet, a body, I sustain around me intentions which are not dependent on my decisions and which affect my surroundings in a way that I do not choose (…) in the sense that they constitute a system in which all possible objects are simultaneously included (…) [and] in the sense that they are not simple mine, they originate from other than myself… (Merleau-Ponty 1962, 511);

thus, existentialism "sees the [human being], not as an *entity*, but as an *existing*, with all that means finding oneself in the world, concretely, in relation with things and with others [human beings]" (Enciclopédia… 1976c, 4634), indicating a position beyond rationalism and empiricism by rejecting the subject-object distinction, despite addressing the inwardness of the subject.

We note that existentialism can be configured as a kind of 'realism from subjectivity' and thus "it remains an idealistic doctrine" (Marcuse 1972, 161) from ontological point of view, and maximizes the subjectivity of the being in your experience from epistemological point of view, establishing a subtle lack of symmetry between subject and object. Furthermore,

> the apology of the existence to the detriment of the essence, however, may involve not only the defense of an anarchic individualism incompatible with social life, but the irrationalism (...) [since] represents an indictment in favor of the individual and of their autonomy (Enciclopédia… 1976a, 4463).

Already the postmodern 'school' (Davidson, Lyotard, Deleuze, Foucault, Baudrillard, Derrida, Rorty, Deely), criticizes the positivism and some variants of marxism (Baudrillard 1993, 7; Derrida 1983, 16; Lyotard 1984, 11-14, 36-37), the structuralism and in some aspects the existentialism (Baudrillard 1993, 7, 92; Derrida 1974, 99, 118), the project of modernity, and imposes severe reexamination "on the thought of the Enlightenment, on the idea of a unitary end of history and of a subject" (Lyotard 1984, 73); it considers the language (narratives) as a pragmatic ("intrinsic to them") and communicative "unstable exchange" of thought, reason, and observation "for the realization of the fantasy to seize reality" (Lyotard 1984, 20, xi, 82); it assumes "that the striking feature of postmodern scientific knowledge is that the discourse on the rules that validate it is (explicitly) immanent to it" (Lyotard 1984, 54); it considers that "the 'rationality' (...) which governs a writing (...) inaugurates the destruction, not the demolition but the de-sedimentation, the de-construction, of all the significations that have their source in that of the logos. Particularly the signification of *truth*" (Derrida 1974, 10); it presents an intrinsic indeterminacy that means:

> ambiguity, discontinuity, heterodoxy, pluralism, randomness, revolt, perversion, (...) decreation, disintegration, deconstruction, decenterment, displacement, difference, discontinuity, disjunction, disappearance, decomposition, de-definition, demystification, detotalization, delegitimization - let alone more technical terms referring to the rhetoric of irony, rupture, silence (Hassan 1982, 269).

So, Lyotard defines "postmodern as incredulity toward metanarratives (…) a metadiscourse… making an explicit appeal to some grand narrative [of modernism]" (Lyotard 1984, xxiii-xxiv). He claims that "the grand narrative has lost its credibility, regardless of what mode of unification it uses, regardless of whether it is a speculative

narrative or a narrative of emancipation" (Lyotard 1984, 37). Furthermore, Baudrillard draws a distinction between representation and simulation of reality: "Representation stems from the principle of the equivalence of the sign and of the real (...). Simulation, on the contrary, stems (...) from the radical negation of the sign as value, from the sign as the reversion and death sentence of every reference" (Baudrillard 1994, 6), because "the simulation principle dominates the reality principle as well as the pleasure principle" (Baudrillard 1993, 76). So, sign or image "has no relation to any reality whatsoever: it is its own pure simulacrum" (Baudrillard 1994, 6).

Despite these considerations, Habermas argues that it is not necessary to give up modernity, and that "we should learn from the mistakes of those extravagant programs which have tried to negate modernity" (Habermas 1981, 11), in particular, the postmodernity that marches under the sign of a 'primordial' anarchism (Habermas 1987, 4), and argues that "the deconstruction of great philosophical texts, carried out as literary criticism in this broader sense, is not subject to the criteria of problem-solving, purely cognitive undertakings" (Habermas 1987, 188). We observe that, as idealists and phenomenologists, the postmodernists "would have us believe that all 'events' are individual and/or social constructions. They believe there is no 'reality' out there to serve as a criterion variable for scientists to use in deciding that 'this theory is more truthful than that one'" (McKelvey 2000, 224), thus denying realism, under the ontological viewpoint. They question the rationality and disregard the grand theories of humanity, and thus, we see a lack of symmetry between subject and object under the epistemological viewpoint, and a possible incompatibility with social life, since, according Berman

> there is no freedom in Foucault's world. (...) Foucault offers a generation of refugees from the 1960s a world-historical alibi for the sense of passivity and helplessness that gripped so many of us in the 1970s [and so] there is no point in trying to resist the oppressions and injustices of modern life, since even our dreams of freedom only add more links to our chains; however, once we grasp the total futility of it all, at least we can relax (Berman 1983, 34-35).

Considering the 'school' of the 'Ecosystem-Culture model' (Ángel Maya 1996), it declares that "we humans were part of nature as a complex sub-system of that even more complex system called nature" (Noguera 2009, 25), and so, assuming a neo-Marxist discourse and contributions of Spinoza's thought, it installs "the environmental problems and the environmental as thought, as a proposal, as a trajectory and even as a teleology in the transformations of culture" (Noguera 2009, 25), overcoming anthropocentrism and logocentrism (centrality of the reason, ideas, systems of thought) "to an ecocentrism where humans belong to nature (...) [proposing] an Environmental Philosophy out of subject and object" (Noguera and Hernández 2008, 39). It assumes that "culture as a mirror image of nature cannot be conceived in isolation from that" (Noguera and Hernández 2008, 41) and "suggests a departure from the oppressing and reductionist logics of science, technology and even modern philosophy" (Noguera 2009, 25) in search of re-enchantment of the world (Noguera 2004); and urges also an attitude aimed at the decolonization (Noguera 2009, 25). It establishes the body as matter and form (Noguera 2004, 41), and being antagonist of identity, the body is alterity conceived "as flow of experiences of me as myself and as I other… [thence] dissolves the subject and object" (Noguera 2004, 39, 42); and it conceives the life-world as "the form of habitat of the being, of the body of the being, the incorporation of being, as being there" (Noguera 2004, 42).

Epistemologically, it seems a form of constructivism as "the movement between *ego* and thing, in the self and other and/or the other (...) constitutes a plexus which is the *a priori* context where it is possible the experience the biotic-symbolic-body" (Noguera 2004, 43); even though it is skeptical on rationalism (Noguera 2004, 44), and it emphasizes somewhat empiricism (Noguera 2004, 20) - thus minimizing subtle the subject-object symmetry. From the ontological point of view, it seems a 'realism from subjectivity', i.e., a form of idealism, because "reality as a whole is not homogeneous but diverse. It is not discontinuous but continuous and changing. Permanent flow of the being (...) who has a deep connection with the mythical" (Noguera 2004, 40-43). We observe that there is no need for a radical departure from theories of modernity given that,

> ... the systems theory, chaos theory, the mathematics of complexity..., the idea of the rhizome [self-consistent aggregates]... in the studies of physics, biology..., philosophy and other currents of contemporary thought, provide key elements for building an environmental ethic (...) [, and] theories such as uncertainty, or quantum physics, question the whole edifice of the accuracy as a synonym of truth (Noguera 2004, 35-38);

and these theories arise from modernity. Furthermore, we observe an 'admiration' attitude towards the environment, emerging from that 're-enchantment of the world', that can lead to a mysticism and religiousism attitude in relation to nature for those inattentive or/and 'not-waking', and that can lead to the myth of untouched nature (Diegues 2005). Moreover, the decolonization is important, but we must avoid falling into an obsession for national identity that provides disagreements rather than an acceptance of the ethno-cultural diversity (Ayubi 2006, 148; Beyhaut 1994; Bóka 2010; Brezinová and Lobotka 2005; Jönsson 2010; Parekh 2005; Ribeiro 2007).

Prior to considering a critical EE, this perspective of education should be considered as a critical theory - Frankfurt School (Lukács, Korsch, Horkheimer, Benjamin, Marcuse, Fromm, Adorno, Karl-Otto Apel, Habermas) -, and thus preserves their bases. According to Bronner:

> Critical Theory was conceived within the intellectual crucible of Marxism. But its leading representatives were from the start dismissive of economic determinism, the stage theory of history, and any fatalistic belief in the 'inevitable' triumph of socialism. They were concerned [with] the political and cultural 'superstructure' of society. (…). They highlighted its critical method over its systematic claims, its concern with alienation and reification, its complicated relationship with the ideals of the Enlightenment, its utopian moment, its emphasis upon the role of ideology, and its commitment to resist the deformation of the individual. This complex of themes constitutes the core of critical theory as it was conceived (…). Frankfurt School had always considered establishmentarian philosophies as obstacles to bringing about a liberated society. Its members condemned the preoccupation with absolute foundations, analytic categories, and fixed criteria for verifying truth claims. They saw two main culprits: *phenomenology*, with its set ontological claims about how individuals experience existence, and *positivism*, with its demand that society be analyzed according to the criteria of natural sciences. Both were attacked for treating society in a-historical terms and eliminating genuine subjectivity. (Bronner 2011, 2-4).

As a social theory, the critical theory is by definition general, it "must deal with much more than worker's attitudes (…) to explain and understand experiences on the basis of other experiences and general ideas about the world" (Craib 1992, 4-8). And so, social theory "is not only *about* social processes, conflicts and problems; it is also *part* of those processes, conflicts and problems" (Craib 1992, 14), because ontologically the individuals are part of a social whole; which means that a social theory necessarily must have also a cosmological, holistic and historical conception of knowledge. For their part a critical theory "is based on the idea that there is something which is essentially human, the ability to work together to transform our environment [and] this provides us with a measuring stick, a means by which we can judge and criticise existing societies [because] each of us comes to know the world as a whole" (Craib 1992, 200-201); which implies that we must assuming a constructivist, dialogic, and transdisciplinary action in the production of knowledge.

From this analysis of these different philosophical schools that deal in some way the interaction between human beings and nature, we realize the impossibility in the confrontation of current social-environmental issues and the need to capture some aspects of these to establish an effective EE. For this, we must take into account: waking life; topology of four space-time continuum underlying the universe; logic of the included third, complexity, and levels of reality; compatibility with social life; decolonization without obsession for national identity; critical view of the meta-narratives without denying them in advance; sense of activity and hopefulness; acceptance of the ethno-cultural diversity; and critical analysis of social questions. As stated, we are part of nature, of an universe that is much larger than the world, which is greater than humanity, so we can only represent the thing in itself, and then idealize it, intuiting *a priori* a topology to *a posteriori* choosing a metric, to build the four-space-time structure on which the self-subsistent relations will be critically realized, through constructivism and dialogism. Thus, we take as a starting point for our proposal on EE the critical theory, extending its philosophic conception to move to a critical theory upon philosophical basis, more appropriate to our days.

We know that EE is a polysemic term (Le Grange 2002) with historical and controversial interpretations, approaches and purposes (Colwell 1997; Dillon 1999; Huckle 1999; Pelicioni 2005; Robottom and Hart 1993; Sauvé 1996; Sterling 2003; Thomas 2005). The search for a type of EE that raises awareness of the power relations that exist in the dynamics of *society* and *environment* is known as *Critical EE*, and with it we can understand the role of a dialogic and transforming education in the formation of individuals socio-environmentally committed to the environment that surrounds them (Carvalho 2001; Guimarães 2004; Loureiro 2004; Robottom 2005). Recognizing how the environment-society dichotomy has been detrimental to the understanding of the social-environmental dynamics and their traps, and not allowing the existence of a blind attitude regarding the impacts of the human activity in this environment, have been the great advancements of the Critical EE (Cavalcante 2006).

A *critical* perspective of EE has matured in a long and tortuous process of re-signification of the term, as a result of the discussion of the relationship among education, society and nature, and demonstrates that the world's environmental imbalance stems from a *perspective of development* and *socio-productive organization* mistakenly conceived, that gives to certain human beings and social groups the power over other human beings,

contexts and environments; in this sense, it is plausible to say that the imbalance can be categorized as *social-environmental*. By denaturalizing these power relations, Critical EE highlights the tensions between society and nature, bringing to discussion the reasons that were historically constructed behind the socio-political (and economic) arrangements imbued in the concept of 'environment'.

For education to be emancipated, it is necessary an analysis of the unbalanced relationship between production and environmental abuse, and a political platform that goes beyond the attitude anchored in a "romantic, utopian and reactionary prescriptions linked to deep ecology" (Huckle 1999, 38). These perception and understanding turn out to be a re-discovery of the potential of education in the struggle for a life that is environmentally healthy and socially fair.

In the first place, the holistic approach (which search for smooth and total integration), can bring a paradoxical point into the debate on the impact of humanity on the environment. Authors such as Grün (2005) claim that the discourse of holistic EE can bring some risks that are not so subtle. He states that "one of the major epistemological and ethical problems of some of these positions is that we would be so 'integrated to nature' that it would not be possible to make the distinction between Nature and Culture" (Grün 2005, 48). However, we believe that an attitude towards EE that accounts for the properties of the universe present in the phenomena would avoid such risks because we will realize that the culture is conceived from the consequences of understanding of these properties underlying the nature, and thereby are not indistinct, much less isolated from one another; since "nature is the substrate on which culture is constructed" (Ángel Maya 2004, 8).

Given the diversity of the debate on EE (Fien 1993; Huckle 1999; Payne 1999; Robottom and Hart 1993; Sauvé 1996; Sterling 2003), Sauvé (2003, 4) calls our attention to the complex and varied existing perceptions of "environment", that range from "landscape, resource, biosphere, problem" to "means of life and community context...". According to her, "the environmental education limited to one or another of these representations would be incomplete and would respond to a reduced view of the relationship with the world" (Sauvé 2003, 4). In another line of argument, Sterling establishes that EE and ESD are in the paradigm of the "instrumentalism which gives insufficient attention to the nature of education and learning, and that their claims to holistic bases are only partially valid" (Sterling 2003, 49).

Continuing the critical analysis about EE, in particular, the socially-critical perspective (Education for the Environment) (Fien 1993) seems to turn out materialist (in ontological point of view) in its conception of the world by recognizing a real reality (Sterling 2003, 314) (because it "is deterministic [regarding to questions about the values of EE] and … it may prejudge what the conclusions of critical thinking might be, instead of allowing students to develop their own conclusions" (Thomas 2005, 108)), rationalistic in its epistemology, and anthropocentric (Gough 1987; Jickling and Spork 1998; Sterling 2003). This image emerges from the fact that the socially-critical perspective

> [has a] subjectivist epistemology, where socially constructed knowledge is not considered to be a matter of deriving timeless, abstract principles but of… uncovering the historical, structural and value bases of social phenomenon as well as the contradictions and distortions within (Robottom and Hart 1993, 11);
> [and] is based in dialectical and systemic philosophies that suggest that nature, society and thought are ongoing processes; that these processes are always

> mediated or revealed through thought and language; and that knowledge is best validated through democratic enquiry or praxis (Huckle 1999, 41);

which means that the nature or object "is 'socially constructed' or mediated through 'cultural meanings, discourses and representations'…" (Sterling 2003, 315).

Moreover, in the 'humanly-constructive' critical theory (Payne 1999) the argumentation establishes that it is a necessary complement to the 'socially-critical' perspective, focused

on our individual and collective 'being-in-the-world'. Thus, the emphasis is on individual

(embodiment) and also establishes a realist ontology (Sterling 2003, 320). By stating that "the locus of understanding, explanation and praxis 'for the environment' should be 'in here, with me and you' rather than 'out there', somewhere to found, identified, studied and solved" (Payne 1997, 133) disregards in principle a cosmological vision.

On the other hand, considering political, social and economic issues Huckle asserts that "recent decades have exposed the limits of free market capitalism, state socialism, and social democracy [so] we have a responsibility in our teaching to address those limits and consider alternative ways of regulating economic and social life" (Huckle 1999, 43). Deepening the analysis about the concept of EE, Leff considers that the "environment is not ecology, but the complexity of the world; it is the wisdom about the ways [of appropriation of the world and nature]" (Leff 2002, 17). In terms of territorialism

> The definitions of 'EE', or 'EfS' or 'ESD' raise the question of boundaries: what educational theory and practice lies within and without these boundaries, and why, and what the relationship is between education on the 'inside' and on the 'outside'. A tendency to maintain borders also tends to diminish the ability of environmental education to work for a paradigm change in education as a whole, and engage in a co-evolutionary way with sustainability movements in wider society (Sterling 2003, 319).

So, the EE is not a singular object of study, and in this sense, the EE does not differ from many objects of scientific knowledge, considering our philosophical analysis carried out earlier about fields of wisdom. Thus, the EE must be linked to the meaning that this complexity brings to the relationship established between socially, culturally, politically and productively organized human beings and the world (or in the world); which philosophically shows the human being-nature interaction (or subject-object interaction). Therefore, going beyond a behavioral perspective, the critical EE requires a philosophical and macro perspective of the social arrangements analysis, in other words, a cosmological, holistic, historical, constructivist, dialogic, and transdisciplinary perspective. The EE brings, in its core, a tense relationship between the desires for social change and for productive transformation, where it is evident that the hegemonic project of society that exists today does not envisage the possibility of a balanced life between people and environments. Therefore, the critical EE shall provide, through training of individuals by using the transdisciplinary, constructivist and dialogic epistemologies, their social identity via knowledge of *objective needs of collective nature*. These macro and micro perspectives of the social arrangements analysis and of tense relationship constitute the

EE's Achilles' heel: to many skeptics, such a perspective of EE is a 'utopia'; to some disenchanted people, a discourse without any repercussion in daily life; and to some who still embrace a tireless activism, it is a scenario where daily life can be linked to a social change proposal that is not a myth.

It is within the perspective of viability and interconnection between the micro and macro levels that critical EE, upon philosophical basis, (*philosophical-critical EE*) can find some resonance, and invoke the merits of critically examine their actions, from various perspectives and in a global way (including the merit of analyse comparative and global exchanges about itself). In other words, keeping in mind the immeasurable power that the history of the societies (western, eastern, oriental, and others post-industrials) and of the economic systems (for example capitalism and socialism) had and still have over nature (Daily et al. 1997; DiLorenzo 1992; Huckle 1999; Meadows, Randers, and Meadows 2004; Nichols 1999; Turner 2008; Vitousek et al. 1997), and taking advantage of the micro power that individuals and groups have (Conway 2004; Guevara, Flowers and Whelan n.d.; Haluza-DeLay 2006; Jesus 2008; Reigota 2007; Vasconcellos et al. 2009; Wenger 1998, 2006; Whelan 2002, 2005), we can still envisage a form of resistance to what is established, and cooperate with the possibility (and boldness!) to attempt to do things differently.

This implies that, for resistance to occur fully, we need to know the subjects and groups deeply, which means to know the social identity (understand the *objective needs of collective nature*) of what we call the EM, made up of these individuals and groups; and this can be better done if we consider a philosophical-critical EE. It is worth noting that, although there are signs of diversity, the EM from this point of view may have an unambiguous influence on EE.

Conceptual Domain of Philosophical-Critical EE

It is known that education has a social nature, that is, when it socializes the individual that comes into the world, education determines the personality standards, teaching him or her the underlying culture of society (Pereira and Forracchi 1987). Thus, throughout the whole educational process, the Individuals in training will form a segment of society that will be always submitted to their interference and contradictions related to the acquisition of knowledge.

In this sense, we should draw some assumptions about the educational process in general (Miltão et al. 2007) that underlie our approach to EE. In relation to *the education conception*, we believe that should be relational (Piaget 1971; Vygotsky 1978), with the aim of promoting the process of interaction and relations of reciprocity, and should be emancipatory (Freire 1970), aiming to promote the awareness process; in relation to *the teaching-learning process* (Faria 1987; Mizukami 1986), we believe that should be seated on the relational and 'cultural action' pedagogies, grounded by the constructivist and dialogic epistemologies, which will enable the process of interaction and awareness, as well as relations of reciprocity; and in relation to *the educational activity* (Berchem 1991; Demo 1991; UNB 1989), we understand that teachers in any educational institution (be it day care, school of elementary and high school or university) must practice in a inextricably linked way the teaching, research and extension activities.

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To Sauvé (1996, 2003) the object of EE is not the environment as such, but our relationship with it. Thus, if the proposal is *relational* and *emancipatory*, it is assumed that it is connected to an everyday posture of the relationship with the world and with each other. In this proposal, the 'environmental educator' is seen as a common individual who thinks, acts and fights in a way that is politically reasoned and emotionally compromised, searching for a fair social-environmental context. In other words, in this view the environmental educator should act/reflect/act continuously in the light of this ideal ... as a pedagogical dance at a 'Freirean' pace. The education of these individuals (subjects) (Carvalho 2004a) goes through life stories, passion, identity, indignation...; a universe of possibilities on each one's life path, not necessarily at the level of professional education, but very strongly towards the direction that each one gives to his/her life as a social subject.

The *production* of knowledge on EE is developed by many individuals and groups in their spacial-temporal micropowers (see Conway 2004, 2008; Guevara, Flowers and Whelan n.d.; Haluza-DeLay 2006; Reigota 2007; Vasconcellos et al. 2009; Whelan 2002, 2005). The importance of this *production* (whether academic or popular) is not questionable, however, from the global point of view and considering the need for a systematic overview, it is necessary an effective engagement of the individuals, from conscience of their social identity, which only occurs with the knowledge of *objective needs of collective nature* (Miltão 2009). Consequently, critical EE cannot be satisfied with content or behavioral approaches, and with circumstantial approaches. The individual action is important, but cannot be dissociated from the meta-narratives of society. How to discuss recycling without analyzing the consumer society? How to discuss deforestation without trying to understand the land issue and its history? How to discuss global warming without analyzing the geopolitical issues in the countries of the north and the south? How to understand the *objective needs of collective nature* without discussing them during all educational process? How to understand social-environmental problems without a proper understanding of the problems of human knowledge?

In regard to EE in schools and universities, we believe that it can take place in the *management*, *training* and *coexistence* within and around these spaces and contexts, as can be seen in the experiences in many countries (Carvalho 2001, 2005; Cavalcante and Miltão 2008a; Geli, Junyent and Sánchez 2003; Le Grange 2002).

If we consider each one of the 'disciplinary fields' as a 'wisdom of the particular' (as the acquisition of certain specificities, or fragments of the phenomenon), exist differences and distinctions between EE and other 'disciplinary fields', because each of them will cultivate certain fragments of the phenomenon. However, considering the 'disciplinary fields' as fields of wisdom (as the acquisition of a certain property of the universe that is reflected in all phenomena), does not exist differences and distinctions, because they will provide the cosmological, holistic and historical approach.

Thus, moving along different levels of education and reaching the administration, the curriculum and the social-environmental coexistence of contexts, philosophical-critical EE stands beyond a proposal for the wisdom of the particular (or reduced wisdom); beyond the notion of 'discipline' as a fragment or a characteristic of a determined phenomenon (although it does not neglect its importance); beyond the territories of specific areas while phenomenal fragments; and beyond the theoretical and behavioral dogmas. Even though we are aware of how this can be a highly demanding and hard to be achieved. The

philosophical-critical EE seeks to understand the properties of the universe present in the phenomena in order to allow human beings take ownership of the *world* and *nature* critically, philosophically and respectfully, fostering social-environmental rationality, social-EE and the establishment of environmental units of production. In this sense, we find possibilities for EE in the trilogy of Teaching, Research and Extension, by means of their political-pedagogical projects, their classrooms (with different disciplines of 'environmental' nature), and the dynamics of coexistence and existence in the university spaces. Thus, philosophical-critical EE stands as a transdisciplinary action which requires a view of knowledge that is cosmological, holistic, historical, constructivist, and dialogic to taking into account the epistemological and ontological questions of human knowledge, to then the social identity of human beings be understood from knowledge of their *objective needs of collective nature*.

So the conceptual domain of philosophical-critical EE has the following ontological and epistemological characteristics. From the ontological point of view and considering the aspects of *existence* and *independence* of the thing in itself and of their properties, the philosophical-critical EE entwines the realistic and anti-realist conceptions: anti-realistic to the extent that the **world** and **nature** as objects-in-itself, exist and are incognoscible, which forces us to take a *cosmological* and *holistic* view of the social-environmental knowledge to apprehend a representation of their essences; realistic to the extent that, among the **forms of appropriation** of the **world** and **nature**, while relations between the objects-in-itself, the *objective needs of collective nature* are cognoscible and so independent, which compels us to take a *historical* view of the social-environmental knowledge to establish them.

From the epistemological point of view, the philosophical-critical EE includes the rationalist and empiricist conceptions: rationalist to the extent that the **forms of appropriation** of the **world** and **nature**, while *a priori* representations of the subject, are the *structure* of the social-environmental knowledge; empiricist to the extent that the **power relations** with the **forms of appropriation** of the **world** and **nature**, while *a posteriori* content of the object, are the *content* of the social-environmental knowledge, which compels us to take a view of the social-environmental knowledge that is *constructivist*, *dialogic*, and *transdisciplinary*, in the establishment of the *objective needs of collective nature*, because the individual ontologically is part of a *social* whole.

Accordingly, we attempted conciliate, in relation to the essence of the social-environmental knowledge, anti-realism and realism, and as to its origin and production, rationalism and empiricism. In case this happens, we will be reaching a formation in philosophical-critical EE with the following features: cosmological, holistic, historical, transdisciplinary, constructivist, dialogic, humanizing (but not anthropocentric), investigative, politically based and socially engaged. And this will reach many professionals, regardless of profession and choice of work. It is within this perspective that the action of EE should be introduced to become incorporated into the dynamics of school and university lives.

Thus, our defense by a philosophical-critical EE is justified from philosophical point of view inasmuch by seeking the human knowledge critically, the individual necessarily and sufficiently, will be seeking the social-environmental knowledge, that includes (in the sense of being beyond) the socially-critical perspective (Fien 1993; Le Grange 2002;

Wade 2008), the 'humanly-constructive' critical theory (Payne 1999), and which ensures,

in principle, a paradigm of information critique (Robottom 1987), in the information age.

Conclusions

We know that human beings have not developed the capability to bear out that the social-environmental issue is reflected in all phenomena, and much less the EE in its present form, since most contemporary individuals instinctively continue stunted with the earthly surroundings (Abram 2010, 42). This is proven by the current state of nature, with the environment being destroyed by humanity itself (Daily et al. 1997; Huckle 1999; Meadows, Randers, and Meadows 2004; Nichols 1999; Turner 2008; Vitousek et al. 1997). Thus, such bodies of relevant findings help us to say that the *field of wisdom* of EE may be organized and strengthened if it is taking into account the philosophical aspects and the social identity of individuals, raised here. So, critical EE upon philosophical basis might have a key role in overcoming this human limitation in any territory of our planet.

The environmental knowledge needs to be better explored in education, from kindergarten to college education or university, for the principle of EE established as "Be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages" (Fien and Tilbury 1996, 14) be met. The concern about the development of an environmental awareness should be introduced since the early years of school, presenting general and philosophical approaches that seek to understand the *objective needs of collective nature* and social-environmental identity (necessary steps towards the construction of an EM).

We believe that the development of an education with a social-environmental-philosophical focus will contribute to address that issue in the world, searching for the units of production that would establish the desired social-environmental rationality. This will bring into the discussion of the human knowledge the understanding of the interaction between subject and nature (from the philosophical point of view) and the interaction between society and environment (from the socio-political point of view), and the potential of a philosophical-critical EE will be met.

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