

Environmental Education: A Sustainability Pathway

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Abstract

This study discusses the relationship between education, environmental education and sustainability. It is widely known that the environmental crisis is a reality that needs to be faced due to the increase in industrialization, production and consumption. Knowledge about the environment, its policies and instruments for the protection and preservation of natural resources must be broad, accessible and democratic. Environmental education is the only way to raise awareness, inform, train and promote actions in favor of sustainability. To investigate environmental education, bibliographical and documentary research was used, through the methodology of historical investigation based on the historiography of environmental education. It is considered urgent that educational policies, as regulatory instruments of the education system, act together with environmental education and sustainable development. It is concluded that environmental education is relevant in the context of sustainable development, through theories and practices that enable the public, private and social engagement of every citizen. This is the only way to build a society aware of its responsibilities with respect to the balance and sustainability of the planet.

Keywords: *Education, environmental education, sustainability*

Introduction

The relationship between education and environmental education is fundamentally a problem and a solution when it comes to sustainability. It is not possible to understand environmental education without legal and technical support from the educational system. This concerns education policy, guidelines and pedagogical practices, as a process that could propose, control and evaluate the teaching of environmental education inside and outside the classroom.

Education is the way to build human development combined with the experience that each individual brings from their environment. Our environments help shape us, make us who we are. Through education individuals can build their realities and solve their problems creating a better society as well as a better people.



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We believe in an education aimed to form critical, reflective, and active citizens in the world in which they live. We are not entirely products of the environment, nor do we inherit all our behavior genetically (Piaget 2). We are the combination of these two elements. In fact, Piaget recognizes the importance of the environment in the construction of knowledge.

According to Guimarães, two lines of proposals for education stand out: one linked to the popular interests of emancipation, social equality and better quality of life, and another that acts in the interests of capital and of market logic, defended by the dominant groups (2). It is at this moment of restructuring of the world order in the neoliberal context that it is fundamental to qualify education. The choice is whether we move toward the emancipatory popular proposal or toward the process of social exclusion.

Educational and sustainable policies must be important instruments of social transformation through environmental education. To carry out an environmental education it is necessary to create a concept of general interest. This is due to the multidimensionality of education for active citizenship. In other words, we need to harness our knowledge bank with the education system to create public interest and public participation. A more active construction in society in terms of learning and applicability of this in contexts beyond school is how environmental education should work.

According to Loureiro et al. paradigm shifts require changes in attitude. The process of participation is only realized through conscious acceptance of its cause (3). Access to information, especially from more excluded social groups, can promote the behavioral changes necessary to enable more action oriented toward the general interest. Well-informed citizens, by assuming themselves as relevant actors, are more able to pressure authorities, as well as to motivate themselves to actions of co-responsibility and community participation (Jacobi 3).

Environmental education is paramount in the context of building collective awareness regarding environmental preservation. Concepts and practices emphasizing the importance of environmental education inserted in public policies on education, must be front and center in school, the place where teacher, student, and society meet. People participation is absolutely

vital. Only then can we achieve a planet that finds and maintains the equilibrium that we want for future generations.

Finally, we must reflect on different types of education systems to understand which pathway will ably lead us to reality about ourselves. This pathway must be based on values that we believe in, such as freedom, autonomy, dialectic criticism. Otherwise, if we don't understand education as a means of giving us total independence over ourselves, we are subject to be commanded by a regulated, mecânica and rigid system. We believe that only through environmental education developed from the political, conceptual, philosophical, ideological bases can we add new and positive approaches to sustainable development.

Education

Starting a discussion on teaching-learning

This chapter discusses education and its relationship to teaching-learning. According to Freire on the banking concept of education, this process becomes an act of deposit, in which the students are the depositories, and the teacher is the depositor. Students instead of communicating, patiently receive, memorize, and repeat (4). In banking education we provide an oppressive, static, controlled process. This education method makes into objects.

According to Freire, in this system people are archived by the lack of creativity, capacity of transformation and knowledge. For apart from research, apart from interactive praxis, individuals cannot be truly human. Knowledge arises only through invention and reinvention, through the restless, impatient, continuous and hopeful research those human beings carry out into the world, with the world and with each other (4).

If we seek an education capable of fostering emancipatory learning, we must work in favor of dialogue, through pedagogical practice oriented towards the teaching-learning relationship, where the student is the builder of knowledge mediated by the teacher. This action is quite different from bank education method.

On the other hand, liberation education consists in acts of cognition, not transferrals of information. According to Freire those truly committed to liberation must reject the banking concept in its entirety, adopting instead a concept of women and men as conscious beings, and consciousness as consciousness intent upon the world (4).

Fernández argues that the learning process takes place at four levels: organism, body, intelligence, and desire. One cannot speak of this process by excluding any one of them (4). In an orthodox view of the learning process, we consider only conscious aspects of the product of intelligence, leaving aside the body and affections. The current view is very different. The degree of affection between student and teacher becomes very important for the success of the relationship, the degree of bond between the two becomes the essential element for the development of learning, not forgetting the four levels of association.

The human being, in order to learn, has to put into play his inherited organism, his constructed body, his intentionally constructed intelligence and the architecture of desire. The desire is not originally his, but another's learned desire (Amorim and Lobo 5).

The matrix of the learning process is playful, and its root is corporeal (Fernández 5). Your creativity is linked through intelligence that is irrevocably associated with sexual desire and is assimilated through balance (Amorim and Lobo 5). Thus, learning would be, above all, linked to instinct. The fractures that can be verified in this process are associated with instinctive mechanisms.

Knowledge cannot be acquired directly in bloc (Fernández 5). The teacher transmits his knowledge through teaching. Each piece of knowledge then needs a corresponding emblem. Through symbols we transmit both knowledge and ignorance. We do not transmit knowledge, but signals. These will be absorbed by the learner then reproduced or decoded.

Knowledge is not born. It is external at first, because only the other has it. Therefore, we should know a little about the other who learns. We must have an affective relationship with this one. This relies on the teaching and not necessarily the teacher. In the first years of our lives this can be the parents or any strong ties, kin, or not. We can only learn when we allow ourselves to learn. It means, we will only learn from a teacher when we grant him the trust and right to teach (Amorim and Lobo 5).

For learning, it is up to the school to have as a priority the relationships between student and student, as well as student and teacher, understanding that the teacher acts as a facilitating agent of the learning that takes place from these relationships.

The development of learning is based on the spontaneous contents of students, especially in the first years of teaching. From this perspective, the teacher must have enough pedagogical

ability to explore the concepts that the student brings and that are defined within the Zone of Actual Development. The Zone of Actual Development is understood as a region belonging to the human being where it considers that each individual can perform tasks alone, this means, without anyone's help.

To enrich the relationship between teaching vs. learning, it is important to know about the Zone of Proximal Development (ZPD), which was the concept created by Lev Vygotsky about his theory of learning and developing. According to him, ZPD meaning the space between what the student can do without adult assistance and what he/she can do with adult driving.

Vygotsky understood learning as an internal construction for an external operation. To the extent that the subject internalizes, he learns, and modifies his perceptions of things, the way of seeing the world, also modifying his ability to solve problems, that is, his superior psychological functions (Amorim and Lobo 6).

According to Vygotsky's theory, we can only understand the individual in terms of his personal territory and his history. This historical-cultural-territorial perspective is based on the development of the higher functions. These typically human functions, are: attention, abstract thinking, voluntary behavior, imagination, memory, the Zone of Potential Development, called by Vygotsky Zone of Proximal Development. This shifts the meaning of the term to: what the individual may be able to do will depend on his surroundings (Amorim and Lobo 6).

According to Souza, more emphatically, a child's learning has a fundamental basis in its own environment. This place where the child's intellectual development is ensured is called the family (qtd. in Amorim and Lobo 7). In the transmission of family cultural heritage, the school has a leading role. In fact, we can consider that both the school and the family are environments that contribute to the learning process. In the absence of one of these two instances, the child's relationship with learning is compromised in relation to quality. That can certainly be an object of development throughout the teaching process, through the signs, symbols and cultural heritages absorbed by their own human development.

Jung goes further regarding the environment. According to him, independent of the self-constructed individual, there is a collective unconscious. The collective unconscious forms the subterranean cultural process, that is, everything we don't see: codes of values, ethics, morals, honor (7).

According to Lawson regarding the principles of brain learning, he says that learning is a natural function of the brain: the brain works for its survival. It is naturally not prepared for formal, institutional, and standardized teaching (7).

Learning is best achieved when many domains cognitive, affective, psychomotor are simultaneously introduced. By the researcher above, new learning must be relevant: if the brain, consciously or unconsciously, perceives that the teaching is irrelevant, the potential to learn decreases. Emotions are clearly an important factor in student motivation: the brain is naturally and intrinsically motivated to learn (Lawson 7).

The most important factor in generating equal opportunities among individuals is education. It is one of the few public policies that has been proven to be efficient, capable of increasing social mobility, allowing for a more equitable distribution of income. Effective public educational policies must take into account all forms of social infrastructure. There is no individualized psychosocial development. Human beings grow with the environment, with their peers, with their family, with their community.

In conclusion, Amorim and Lobo recognize the importance of education externalities in any society which seeks its own development. According to them It is difficult to holistically address all externality processes arising from the education system (8). However, it becomes unquestionable, through a vast literature, that the process exists, that is, education positively influences the life of any human community on the planet.

Now that education as a teaching system has been explained from early childhood, we can understand how the adult creates his relationship with learning. Going a little beyond the school-learning relationship, we take into account that learning occurs before it, especially during and, above all, after. This brings a reflection on the future we want when the environmental issue becomes a fundamental part of the individual's life, where learning about the environment should be a recurring agenda, inside and outside of school.

A preserved environment is the happy result of an educational system oriented to this. To understand how environmental education should be part of human life, it is crucial to discuss thematic, sustainable development, as a commitment that every citizen should have with the future of the planet.

Sustainable development

To discuss sustainable development it is necessary to understand exactly what it means. According to Brundtland, sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (qtd. in Sachs 8).

Historically, sustainability emerged as a point of support for the scarcity of natural resources, mainly due to population growth in the 18th and 19th centuries. In the second half of twentieth century, when industrial development was positioned in the market to cause significant environmental impacts, the concern with this subject gained traction.

Initially, sustainable development sought to integrate environmental issues with economic policy. The impact of pollution in the 60s and 70s served as a basis for international environmental policy. In the last several decades, sustainability has reached every conversation due to environmental concerns and policies, with advances and setbacks throughout the history of sustainable development.

The concept of sustainable development now presents itself as a new semantic element of international language and a focus of experts from international organizations. Sustainable development aims to guarantee economic growth essential to meet the current demands as well as the needs of future generations through the rational use of natural resources. It must be understood that broadly includes three important components: economic development, social inclusion, and environmental sustainability.

The complexity of sustainability increases the need and importance of actions from all sectors of environmental management to seek integrated and sustainable solutions. This complexity translates into planning systems that do not accompany the dynamic nature of cities, the complexity of the environment nor their role in the development process, discontinuity of policies, plans programs and projects. Systems will reduce or cancel the positive impacts of investments in infrastructure and operationalization of human settlements. Finally, the low participation of society in this management process (Philippi Jr. and Malheiros 9).

Environmental changes imposed by the significant consumption and production patterns of societies considerably alter natural environments, polluting the physical environment,

consuming natural resources without adequate metrics, increasing the risk of exposure to diseases, and generally acting negatively on the quality of life (Miranda et al 10).

The main concern of sustainable development in practical terms may be related to our crowded planet and its ability to support self-recovery. As already posed, this means a surcharge on the use of natural resources. When humanity reaches the limit overtaking the level of natural resources that can be renewed, the planet enters a kind of negative credit. This resource deficit started in the 70s. We well-know these subcategories now: deforestation, soil erosion, drought, food shortages, wildfire, and other drastic consequences caused by climate change that will be discussed later.

Environmental threats are arising on several fronts and changing Earth's climate (Sachs 10). This alarming situation is due to the greenhouse gases caused by industrialization, accelerated population growth and disordered consumption of resources.

The planet we want from the perspective of sustainable development must be the focus of humanity's actions. To achieve the common good, we must act with attitudes based on the preservation and conservation of the planet, including economic and social relations. After all, the term "sustainable development" was created years ago and continues to be so current provoking reflections about sustainable politics in all countries that are seeking a better planet.

Policies as instruments for critical reflection

Education policies

Critical reflection generates praxis, action-reflection-action. Being the role of education to form for citizenship, prepare men to demand their rights and fulfill their duties. It is up to education to contribute to social participation and representativeness, influencing the formulation of public policies and the construction of the culture of democracy.

According to Guimarães two lines of proposals for education stand out: one linked to the popular interests of emancipation, social equality and better quality of life, and another that acts in the interests of capital, of market logic, defended by the dominant groups. It is at this moment of restructuring of the world order in the neoliberal context that it is fundamental to define the type of education, demonstrating whether it points to the emancipatory popular proposal or if it is compatible with the process of social exclusion (11).

According to Pelicioni and Philippi Jr., humanity needs a new project that considers the question of the universality of human beings within the historical process, establishing the ethics of the promotion of life. This requires reflections and actions on inequalities, poverty, exclusion, practices, and consumer relations (11). This also presupposes the reconstruction of paradigms and the relations of humankind with society, imposing continuous reflection.

Pedagogical praxis, as an educational dimension of political action, is constituted by creative action on the relations of domination in force in society, producing social misery, social exclusion and ultimately is responsible for possible planetary crisis (Guimarães 11).

Educational policy must not lose sight of the complex challenges that arise and, consequently, the values of autonomy, citizenship, and social justice as the basic principles of education (Reigota 11).

According to Bell and Stevenson, “Educational policy studies tend to take one of three forms: the development of analytical models through which policies can be analyzed and interpreted; the analysis of a number of policy-related issues; and the analysis of policy criticism.” (11-11).

Research in educational policy should be based on broader projects and roles in which social problems are managed, allowing through research to categorize, professionalize and restrict itself to specific problems (Ball, *Education Reform* 12). In this context, epistemological development in education works politically and is strictly imbricated in the practical management of social problems.

Indeed, research in educational policy uses positions, concerns and variable models in relation to the methods and processes of reform and in relation to the traditions and practices of the human sciences. Educational crises are manifestations of historical, structural, and ideological contradictions in educational policies.

A challenge for educational policy is the development of a critical theory of recognition that identifies and sustains the versions of cultural policy combined with a social policy of equality, based on new intellectual tasks and related practices.

It urges to emphasize that the post-structuralist perspective seeks to determine the limitations of descriptive and pluralistic approaches to educational policies: in these the sense of power circulates among the different partners. “Marxist approaches focus on the role of the state

and the generation of policies as a proposition of the divergences of power between the economy and political agents” (Ball, *Good School* 156-12). The post-structuralists emphasized that the action of the subject is determinant for the understanding of policies and that power, and their possession are conceived by the different agents.

It is necessary to analyze educational policies, understood as text and discourse. Based on Foucault, Ball understands that, in practice, actors translate into a variety of discourses, however, some will put themselves in the context of domination before others (qtd. Ball, *Good School* 12).

The conception of politics based on pluralism is little like the representation that Marxists make of it. Pluralists emphasize an unarticulated set of foci of power and influence, the State being only one. The confrontation with criticism is emphasized, both in the approaches of post-structuralist and pluralistic educational policies. Politics aggregates the meanings of practice and thus idealizes the interpenetration between domination and resistance, resulting, at certain moments, in the ambivalence of discourses (Ball, *Good School* 13).

In short, only through education developed from the political, conceptual, philosophical, and ideological bases can new and positive approaches to educational development be added. However, reflections and discussions of the theoretical and methodological aspects of educational policies are necessary to drive qualitative advances in education.

Sustainability policies

A development strategy should not be based simply on the predatory form of the use of nature without considering a significant compensation for the loss of natural capital in which it occurs (Cavalcanti 13).

According to the author above, what can be advanced in the formulation of public policies for sustainability, is that the real environmental problem consists precisely in raising the capital of nature, using its stocks healthily, without overloading the functions of supply, source (resources) and absorption or waste of the ecosystem.

Sustainable development policies since their emergence always mean, irrefutably, some form of environmental degradation, the economic process must use nature in a more lasting, sober and healthy way than has been the practice to date (Cavalcanti 13).

The discourse of development about the increase in per capita value, which would effectively result in growth, is questionable. What is expected is that this supposed growth will point to the reduction or eradication of poverty.

According to Cleveland, the problem becomes more acute when it is empirically verified that increasing amounts of natural capital have been needed to produce a unit of recourse for society, as is evidenced by studies on scarcity (Cavalcanti 14).

Opting for sustainability means adopting a guideline to conserve more natural capital for future generations. This implies acceptance of a philosophy of finitude and self-restraint, which is not easy to reconcile with globalized attitudes of consumption (Cavalcanti 14).

An important principle of policy formulation for sustainability is to have a consistent information system to measure the economic performance of a country or region. According to Viola, in a sustainable society, progress must be apprehended by quality of life (health, longevity, maturity, psychological, education, a clean environment, community spirit, leisure enjoyed intelligently, and so on), and not by material consumption (14).

Government policy for sustainability means an orientation of public actions motivated by the recognition of the fundamental ecological limitation of resources, without which no human activity can be carried out. According to Roegen, the strategic problem is to find the sustainable metabolic flow, which can increase societal well-being without causing damage to environmental functions and services; in other words, the level of the social product must be guaranteed, in the same way as the quality of the natural environment and the quality of life (14).

Sustainability partners

Environmental education, recycling, and popular participation

The environmental issue is still little known broadly by the world population and basically reaches the only most privileged classes of society. The contemporary problem of climate change is increasingly highlighting the theme of the environment and challenges for the construction of a consistent environmental education (Loureiro and Torres 15).

Environmental education is a comprehensive form of education, which aims to reach all citizens, through a permanent participatory pedagogical process that seeks to instill a critical awareness about the environmental problems, materials present on overview of the genesis and evolution of today's environmental problems.

The preservation of the environment depends on everyone: government, educators, companies, non-governmental organizations (NGOs), media and every citizen. Environmental education is fundamental in solving these problems, as it will encourage citizens to know and do their part, including: avoiding waste of water, light and unnecessary consumption, selective collection, purchasing products from companies concerned about the environment, charging the competent authorities to enforce the law, treating garbage and sewage correctly, protecting natural areas, making land use plans, and encouraging recycling, among others.

Environmental education emphasizes local norms, and seeks to maintain respect for the different ecosystems and human cultures of Earth. The duty to recognize global similarities, while effectively interacting with local specifics, is summarized in the following motto: Think globally, act locally.

An environmental education program to be effective must simultaneously promote the development of knowledge, attitudes and skills necessary for the preservation and improvement of environmental quality. We start small, with the school laboratory, an urban metabolism and its creating a natural and physical resources. We expand through the vicinity and successively to the city, region, country, continent and planet.

Learning is always more effective if the activity is adapted to the real life situations of the particular environment in which students and teachers live.

In 1975, as an offshoot of the Stockholm Conference, the International Seminar on Environmental Education took place in Belgrade, where the conceptual bases of environmental education were defined. Guimarães made the following statement:

The basic principle of environmental education is attention to the natural and artificial environment, considering ecological, political, social, cultural and aesthetic factors. Environmental education should be continuous, multidisciplinary, integrated within regional differences, focused on national interests and focused on questioning the type of development. Its priority goal is the formation in individuals of a collective consciousness, capable of discerning the environmental importance in the preservation of the human species and, above all, stimulating cooperative behavior in different inter- and intra-nation relations. (16)

Some concepts used even exhaustively in Environmental Education are not always understood in their full meaning and generate serious conceptual problems of reasoning formation. Following are some of them:

It is necessary that the process of environmental education is carried out with real, active participation of the students. Brugger defines as training does not happen: a type of instruction where people are led to perform a certain type of function or task, identified with a certain utilitarian-one-dimensional pattern of thought-action. It is ineffective as aspirations and objectives, which by their content transcend the established universe of word and action, are reduced to terms of that universe (141-17).

To carry out an education process, whether environmental or not, it is necessary to create a concept of general interest that is strengthened incrementally. As the dimensions of education for active citizenship are absorbed the effect will be the multiplication of participation in the decisive processes of public interest (Jacobi 17).

Thomas Jefferson was a strong proponent of national public education. He advocated providing a formal education as a basis for lifelong learning, a pursuit he believed represented humanity's purest endeavor (Saylan and Blumstein 17).

In this view, the process of participation is only realized through the knowledge of its cause, and access to information. Only by inclusiveness, especially from more excluded social groups, we can promote the behavioral changes necessary to enable more action oriented by the general public. Well-informed citizens, by assuming themselves to be relevant actors, are more able to pressure authorities, as well as to motivate themselves for actions of co-responsibility and community participation (Jacobi 17).

It is necessary to organize and formulate strategies based on participatory processes, between governmental organizations and NGOs. This is the only way to maintain socio-political commitment aimed at achieving environmental management objectives; include to the most deprived strata of the population.

Based on this process, Jacobi explains that the need to strengthen the institutional context is unquestionable. Jacobi posits that for this to occur it is essential to generate references for residents regarding the availability, access and costs of services locally. This will allow them to establish various links with the perception of environmental problems in their most immediate surroundings, neighborhood and home (18).

The existing challenge is to formulate viable links for the implementation of improvements that are both technical and socially efficient. Institutional strengthening is a

relevant but not sufficient condition to consolidate improvements. There is a need to take into account the level of information and/or misinformation of residents about interrelations between the environment and their involvement and motivations with a perspective that emphasizes the general interest (Jacobi 18).

Institutional reforms and, fundamentally, new methods in the processes of management of environmental issues will be important for the success of environmental policies (Cahn 18). Thinking about this possibility, there is an urgent need for the adoption of educational measures that are directed to the betterment of the environment. We must not forget humans have been exercising decisions affecting the environment for millennia and evaluating the impact has not always been harmonic.

Paradigm shifts require changes in attitude (Loureiro et al 18). Environmental education seeks to implement new relationships between men and other species, men with the abiotic environment, and most importantly man and other men.

Environmental education must start at home, reach the street and the block, encompass the neighborhood, cover the city, overcome the peripheries, rethink the fate of pockets of poverty, penetrate the intimacy of oppressive spaces, reach the peculiarities and regional diversities to integrate national spaces. The basic aim of environmental education is to ensure a healthy environment for all men and types of life existing on the face of the Earth.

Freire develops educational praxis through dialectics. This is a process of reflection and action in the construction of knowledge; it is fundamental way to intervene in reality and promote change leading to citizenship. This implies back-and-forth movement between the critical unfolding of reality and the transforming social action. All this is based on the principle that human beings educate themselves reciprocally and mediated by the observable world (19).

Loureiro et al. state that environmental education is an educational and social praxis that aims to construct values, concepts, skill and attitudes that enable the understanding of the reality of life, plus the lucid and responsible action of individual and collective social actors on the environment (19). In this sense, it contributes to the attempt to implement a civilizational and societal pattern distinct from the current one, based on a new ethics of the relationship between society and nature. Thus, for the real transformation of the structural and conjunctural matrix in

which we live, environmental education, by definition, is a strategic element in the formation of broad critical awareness of social and production relations that balance human needs and nature.

For education, including environmental education, to be effective, it cannot be something verticalized in the educator-educating model. But rather it must be reflective, constructed:

From this process, comes a knowledge that is critical, because it was obtained in an authentically reflective way, and implies a constant act of unveiling reality, positioning itself in it. Knowledge constructed in this way perceives the need to transform the world, because in this way men discover themselves as historical beings. (Freire 19)

Environmental education understood as learning new skills that lead to changing values and attitudes should involve all who interact with the environment: the production sector, government, and organized civil society.

As a social movement, the environmental issue consolidated in the late 1960s, and in the early 1970s. But it is since only the 1980s that it was popularized.

Certainly, the intensification of socio-environmental problems has impacted global public opinion and attracted attention to a reality little observed until then. It is a fact that the multiplication of socio-environmental problems has contributed to the growth of ecological awareness. Simultaneously we observe an increase in questions about the relationship between society and nature and about the disintegration of knowledge about economics, ecology, sociology and biology, in the sense of the approximation of the natural and social sciences.

However, this awakening of ecological awareness has not yet resulted in significant changes in the direction of government policies and individual lifestyles.

Nevertheless, ecological awareness incrementally grows and materializes in social movements, scientific initiatives, the media, government policies, international organizations and business activities.

Environmentalism is analyzed by Viola, who note that the movement began, in the 1970s, with minorities of scholars and environmentalists. This small group organized itself around the denunciation of aggressions and the defense of ecosystems. Eventually a critical mass of scholars coalesced to question the capitalist conquest of new spaces, until acquiring a true multisectoral cohort. From the point of view of the concerns and guiding themes of the movement, the focus of attention broadened to include issues such as political ecology, demographics, the relationship

between poverty and ecology, technical-scientific issues, ethics, north-south relations, and the search for a new model of development (20).

The multisectoral profile does not imply uniformity of positions, it indicates only a growing plurality of social sectors that recognize the legitimacy of the field and the need to include it in the planning of national and global development (Viola 21).

Guimarães points out that it is necessary to exercise praxis in environmental education, because only action generates activism. Study alone generates an immobility that will not fulfill the transformative possibility of education. Thus, the solution would be to participate in a true dialogue between the reflexive attitude and the action of theory with practice, that is, thinking with doing. This process strengthens human knowledge and enables us to alter our destiny (21).

The following sentence by Freire seems very appropriate to the concept exposed:

Man is a being of relationships. Culture is a reflection of man's creative process and this creative process makes him an agent of active adaptation and not of an accommodation. This conception distinguishes nature from culture, understanding culture as the result of its work, of its creative effort. This discovery is responsible for the rescue of self-esteem, because, both culture is the work of a great sculptor, as the brick made by the potter. We try to overcome the dichotomy between theory and practice, because during the process, when man discovers that his practice supposes knowledge, he concludes that knowing is interfering in reality, he perceives himself as a subject of history. (21)

Environmental learning can occur inside or outside of school, through curricula about also social movements, including the current activism.

When we fly the flags on environmental causes, we trumpet the truth as way produce attitude change. This is not a simple thing to do.

People around the world concerned with climate change, do not do anything except recycle. Although recycling is very important from the perspective of environmental preservation, we need to go beyond that. It is necessary to reduce consumption and actively participate in political debates on environmental issues. So, consciously, we can collaborate with the preservation of life, the recovery of environmental and salvation of the Earth.

We must promote a great movement regarding environmental concerns. If governments don't listen, then the people should act. We believe that only environmental education, environmental management and environmental movements through widespread activism will contribute to the improvement of the quality of our world. Dialogic discourse leads to towards an

educational group participation which leads to practice, i.e., a new relationship with nature from a dialectical society. This is a point that we can do in an organized goals, only through joint actions.

Greta Thunberg has said in some of her speeches about climate change: “I felt like I was the only who cared about the climate and the ecological crisis” (BBC 22). “Change is coming whether you like it or not” (Unep 22). “Yet you all come to us young people for hope” (Unep 22).

Greta is Swedish. She is just a teenager, but her actions have impacted all the world through her words and actions. She asks hard questions about environmental causes and consequences that need change. She challenges leaders at all societies and governments. She is 17 years old and her voice became a clarion call to millions of other teens, adults, people around the world, like you and me.

Greta’s actions went viral after her protests in front of the Swedish parliament asking her government to commit to carbon emissions targets agreed to in 2015, in Paris. She held a sign saying: “School Strike for Climate”. She started skipping school on Fridays and asked for the support of all students all over the world. In 2019, she sailed on yacht for two weeks to New York to participate in the UN Climate conference. She made a scathing speech to the UN demanding answers from world leaders.

The best pedagogy involves action-reflection-action. Thus, start at home, reach the street and the block, encompass the neighborhood, cover the city, overcome the peripheries, rethink the fate of pockets of poverty, penetrate the intimacy of oppressive spaces, reach the peculiarities and regional diversities to integrate the national spaces of education. Observe, participate, analyze, reflect. Repeat.

We know environmental movements are extremely important as instruments for the dissemination of environmental education. We know collective awareness practical actions, discourse and participation provide the path we must travel to preservation, maintenance and recovery of nature. We know dynamic individuals like Greta play an important role.

Certainly, environmental activists, non-governmental organizations, environmental educators and governments all really need to do their part in protecting society, defending life of

the planet and fighting climate emergencies. Most governments historically favored industrial development and were slow to notice and protect the natural world.

Climate emergency is not a rhetorical call for accelerated climate action. It's a call for an economy change. And, as in all complex dynamic systems, this is not an either-or choice.

Right now it's necessary to eliminate use of fossil fuel replace it with renewable energy. Right now it's necessary to step up and to recover biodiversity, protect water sources, plants and micro-ecosystems, and forests promoting life of species. Right now it's necessary to invest dramatically in sustainable development public and private. Right now it's necessary to replace the energy matrix and eliminate greenhouse gases.

Together in only one voice the whole society, companies, schools, universities, environmental and social activists must maintain momentum with popular actions and movements in favor of preservation and protection of the Earth. Right now it's necessary to listen to the science and hear the cry of nature against its devastation.

Material and method

To investigate environmental education, bibliographical and documentary research have been used, through the methodology of historical investigation based on the historiography of the environmental education. This article consisted of research on education, environmental education and sustainability and their interdependent relationships. It sought a critical, historical, political and social reflection in the seek for sustainability of the planet through environmental education.

The bibliographical and documentary research, characterized as theoretical studies, were carried out through a survey of the literature already published on the subject, through books, journals, dissertations, theses, documents and laws. According to May, documentary research becomes means through which the researcher seeks a correspondence between its description and the events to which it refers (24). By Gil the bibliographical research allows the researcher to cover a much broader range of phenomena than the one that could directly research (24).

Results and discussions

Environmental Education: a brief walk on history

The issue of the environment and environmental education are mixed up throughout history. In the 1960s, the environment was not primarily characterized as a focus of interest in

nature preservation or conservation, especially in developed countries. Society was also based on predatory consumption and productivity although social movements trying to make something.

In the 1970s the term environment became part of the global discussion, at the heart of the economic crisis that has settled in most world nations. Environmental education began in view of the tension and pressure of the moment, the mind-blowing pace of the environmental tragedy of modernity (Santos 25).

In 1972 the United Nations Conference on the Human Environment takes place in Stockholm. Furthermore, the environment becomes a political interest and the United Nations Environment Program (UNEP) is established, implemented in 1973. It is interesting to highlight in this period the study called growth limits, carried out by the Club of Rome. This document has been much criticised because it shows concern for the environmental issue, however, alarmingly.

In 1977 the Tbilisi Conference (Georgia, former USSR) showed the need for an interdisciplinary approach and for the knowledge and understanding of environmental issues by society as a whole (Pelicioni and Philippi Jr. 25).

In 1987, according to Pelicioni & Philippi Jr., the Moscow Conference established guidance and evaluation of actions and goals for the realization of environmental education in all societies on the planet; being assumed currently by both government public policies and entities in the non-governmental sphere (25).

It is important to emphasize that Environmental Education was discussed during the Rio 92 Conference, where the Environmental Education Treaty for Sustainable Societies and Global Responsibility was established, after discussion, suggestion, elaboration and, finally, approval. The diversity was a pertinent theme within this document establishing since then a commitment of individual and collective character with sustainability. This occurred as a manifesto against the development of societies. It is established after this treaty, a commitment to environmental education, being an important part in formal education, according to government plans.

In 1997 at the International Conference Environment and Society: Education and Public Awareness for Sustainability held in Greece, it was proposed the reorientation of education to sustainability. At this meeting, it was understood that this concept should cover not only the environment, but also poverty, housing, health, food security, democracy, human rights and

peace, as a moral and ethical result, in which traditional knowledge and cultural differences should be respected (Pelicioni 26).

In Kyoto, Japan, the Kyoto Protocol was signed in 1997, as a new component of the Convention, which contains, for the first time, a binding agreement that commits northern countries to reduce their emissions. This Protocol commits a number of industrialized nations to reduce their emissions by 5.2% - compared to 1990 levels - for the period 2008- 2012. It establishes three flexibility mechanisms that allow these countries to comply with emission reduction requirements outside their territories.

According to Greenpeace, projects related to carbon sorpherins, nuclear power, large dams and "clean carbon" do not meet the requirements to receive emission credits, according to the Clean Development Mechanism (CDM), as it requires projects to produce long-term, real and measurable benefits.

In June 1997, Rio+5 was held. On this occasion, 53 heads of state met in New York to assess the progress made in the five years after Rio 92, in relation to the commitments made at that time, in addition to accelerating the implementation of Agenda 21. At this meeting, the growth of the globalization process, capital markets and foreign investment was recognized. Lower fertility and population growth rates worldwide were also found. There have been some advances in institutional development, international consensus, public participation and private sector actions.

On the other hand, among the delays found, attention is drawn to poverty and consumption and production patterns, which remained unsustainably high. Income inequalities have widened between nations and within each of them, as well as environmental degradation, globally (Kranz and Mourão 27).

Five years after 1997, the World Summit on Sustainable Development, also known as Rio+10, met in Johannesburg, South Africa. This event brought together government leaders from around the world, as well as the intense participation of the productive sector and local and regional authorities. The main objective was to define objectives and strict deadlines for the effective protection of the environment.

The historical scenario in which this event occurred was very different from the panorama of Rio 92, when the world had just left the cold war and which had been marked to

strengthen international solidarity in combating threats and security, which compromised an effective sustainability of development on a global scale.

The central theme of Rio+10, proposed at the preparatory meetings in 2001, was the search for a new globalization that ensures equitable and inclusive sustainable development (Vargas 27). The World Summit on Sustainable Development Rio+10 focused its discussions on three main themes: government commitments to reduce poverty and protect the environment in poor countries, implement Agenda 21 and transfer resources and technology; parallel meetings to discuss the proposal to convert the energy matrix to ten percent of renewable sources and policies to protect biological diversity; and meetings and side events promoted by NGOs to discuss issues such as poverty, the environment, gender issues and human rights.

The Future We Want was the theme of the Rio + 20 Conference in 2012 in Rio de Janeiro, Brazil. The United Nations Conference on Sustainable Development, informally called the Rio + 20 Summit, was a global meeting where social inequality was discussed with a view to raising the standard of living of humanity.

At the 2012 meeting, world leaders concluded in a final document called The Future We Want saying absolutely that we should not give up:

We are committed to reinvigorate the global partnership for sustainable development that we launched in Rio in 1992. We recognize the need to give new impetus to our cooperative pursuit of sustainable development and are committed to working together with key groups and other stakeholders to address implementation gaps. (qtd. in Sachs 6-28)

By the way, The Future We Want reaffirmed the need to achieve sustainable development according to UN General Assembly:

Promoting sustained, inclusive and equitable economic growth, creating greater opportunities for all, reducing inequalities, raising basic standards of living; fostering equitable social development and inclusion; and promoting integrated and sustainable management of natural resources and ecosystems that supports inter alia economic, social and human development while facilitating ecosystem conservation, regeneration and restoration and resilience in the face of new and emerging challenges. (qtd. in Sachs 6-28)

In addition, globalization, environmental impacts and the poor distribution of income were raised. This discussion highlighted the need to eradicate poverty and change consumption patterns to achieve sustainable development.

In 2015, New York hosted the Sustainable Development Summit, where the new Sustainable Development Goals (SDGs) and a universal sustainability agenda for 2030 were defined. Ending poverty, protecting the environment and combating climate change are the specific objectives of this meeting. Yes, these narratives had already been on the agenda of discussion in 2000 with the adoption of the Millennium Development Goals (MDGs). They also included the fight against extreme poverty by 2015, as a commitment made by the 191 leaders of the United Nations Member States.

Sustainable development is a normative, which means that it recommends a set of objectives to which the world must aspire. The nations of the world have adopted the SDGs precisely to assist in the future course of the economic and social development of the planet.

Finally, in 2019, another major Conference in New York discussed climate change. At this meeting, according to the UN, the main goal was to get the world to achieve carbon neutrality by 2050. Achieving carbon neutrality means that countries should no longer emit polluting gases than nature is not able to absorb. However, there is alarming chaos in the world that amplifies the climate crisis. The emission of toxic gases being released on a large planetary scale being reduced by 2050 seems ambitious at best.

In conclusion, we can see that as a democratic practice, environmental education prepares for the exercise of citizenship through the active individual and collective participation taking into account the socioeconomic, political and cultural processes that influence it. It requires new strategies to strengthen critical awareness, enabling the population to social action committed to the reform of the capitalist system.

Environmental Education: a methodological pathway

Environmental education in its concept and intention has a position contrary to the model of economic development of the capitalist system. It requires a deep knowledge of the philosophy, theory and history of education, its objectives and principles, as it is an education applied to environmental issues. Its conceptual basis underlies Education, Environmental Sciences, History, Social Science, Economics and other (Pelicioni and Philippi Jr. 30).

The importance of environmental education is not only about understanding and acting on the ecological problem, but rather establishing a cause- and-effect relationship of degradation processes with the dynamics of social systems. According to Mello and Souza, it suffers from

theoretical omissions and the singular fractionation of its meanings and aims to contribute to the improvement of critical awareness in relation to the ecological crisis (30).

According to Sorrentino, the complexity of the concept of environmental education influenced the classification of environmental education in four major theoretical-practical categories: conservationist, outdoor education, environmental management and ecological economy (30).

By the author above, the first is present in societies advanced by the actions of entities that defend the untouchable biophysical nature. The second current is present in the work of former naturalists and educators in addition to those who seek self-knowledge in contact with nature. Environmental management has a strong political implication and is linked to the struggles of social movements. The ecological economy, on the other hand, is inspired by the concept of eco-development, which defend alternative technologies in the treatment of land, energy use, waste treatment and others (Sorrentino 30).

The objective of environmental education is to contribute to biodiversity conservation, individual and community self-realization and political and economic self-management, through educational processes to improve the environment and quality of life (Sorrentino 31).

Environmental education can be carried out in any organizational space or not. We can suggest three different compositions of environmental education teaching:

1. It is characterized by formal teaching of environmental education that activity carried out in regular spaces, composed of a pedagogical plan, with learning objectives and evaluations. It can be concluded that this type of teaching occurs more frequently in school units;
2. Activities carried out in social settings, public or private institutions, but not registered as educational units, shall be considered non-formal. However, they differ from the informal ones because their socio-educational context is oriented to environmental awareness with clear objectives.
3. Informal education may be considered any type of activity carried out in non-organisational spaces, without connection with any teaching method, but which works on the environmental issue informally.

In sum up, environmental education must reach all people in the world through permanent action, where participation is the main instrument of action. The focus of the problem

is the environment and its crisis and the solution can be found in the collective consciousness about the necessary care in relation to the planet, its genesis and evolution.

Conclusion

Environmental education in a critical reflection brought light to this study. Critical reflection generates praxis, which is action-reflection-action, in which environmental education when training for citizenship prepares men to demand their rights and fulfill their duties, for social participation and representativeness, contributing and influencing the formulation of public policies and construction of the culture of democracy.

A new universal project that considers the historical process of the individual needs to be established (Guimarães 32). This requires an understanding of social inequalities, which accounts for environmental resources from the perspective of production and consumption. This presupposes changes in paradigms regarding the relationships of the human being with nature, imposing continuous reflection from action. A critical environmental education should consider all interests: natural resources, public policies, investment and a broad plan of action involving government, business, institutions and civil society.

Pedagogical praxis, based on political action, produces domination in society, contributing to social and environmental misery, increasing the planetary ecological crisis. (Guimarães 32). In this conception, environmental education actions should be based on awareness of the role of education for sustainability, which includes the eradication of poverty and the preservation of natural resources through an active, participatory and permanent education process.

According to Reigota, environmental education should not lose sight of the complex challenges that present themselves and in turn the values of autonomy, citizenship and social justice as the basic principles of education (32). It is a fact that numerous factors have contributed to the worsening of the environmental crisis, however, environmental impacts are not exclusively caused only by demographic explosion or by increasing urbanization and industrialization, but it should be analyzed above all, the historical and social context in which these factors emerge (Pelicioni and Philippi Jr. 32).

It believes that only through environmental education, developed from political, conceptual, philosophical and educational approaches could new and positive theories and practices be added, contributing to planetary sustainability.

It is concluded that environmental education could, at first, sensitize everyone regarding environmental issues, so that later, it generates instruments that identify problems and help in the search for solutions, integrating biodiversity conservation and the sustained multiple use of ecosystems everywhere.

Future research may be developed to investigate the impact of environmental education in communities, schools, companies, public or private institutions, among others, aiming at raising awareness and training in environmental sustainability actions.

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