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ENVIRONMENTALIZATION IN FORMAL SPACES - A STUDY CONDUCTED IN PUBLIC SCHOOLS IN SÃO PAULO

Edicarlo Ferreira
Doctoral student in the Science and Mathematics Teaching course at Universidade Cruzeiro do Sul, in São Paulo
https://orcid.org/0000-0002-6485-1096

Rita de Cassia Frenedozo
PhD, professor and advisor in the Post-Graduate Course in Science and Mathematics Teaching, at Universidade Cruzeiro do Sul, in São Paulo
https://orcid.org/0000-0002-5005-677X

Abstract: This work aimed to review the literature on environmental issues in formal education in the State of São Paulo. The research problem is: how is environmental education being worked on in formal teaching and learning spaces? Specific objectives: to investigate the adoption of environmental educational activities by public schools; understand how environmental initiatives conducted in public schools can impact citizen behavior. For the literature review, the Narrative Bibliographic Review was adopted in this study. The bibliographic survey considered articles published between 2015 and 2020 in the databases (Google scholar, on the Scielo platform and on the CAPES theses and dissertations bank). For the search, the keywords were used: Environmentalization, Formal Space and Teaching. There are appropriate schools with available places to comply with the National Curriculum Guidelines for Environmental Education, allowing the development of projects, with a participatory and collective spirit.
Keywords: Environmentalization; Formal Space; Teaching.

INTRODUCTION

Contemporary education must assume a broader conception, using informal and non-formal education as a complement to formal education. The expressions formal, non-formal and informal emerged from the 1960s, anchored in the reference of the school space. Formal learning would be those carried out within the school environment and those conducted outside the space would be non-formal and informal. Non-formal spaces can be museums, cultural centers and Non-Governmental Organizations (NGOs) (GOHN, 2016).

The expression 'environmentalization', according to Lopes (2006), is a neologism of the social sciences, designating new phenomena, or perceptions thereof, from a procedural perspective. Within society, it adds historical grandeur, along with the constitution of new phenomena, in an assumption of the different attributes of the public environmental issue. In the meantime, curriculum environmentalization emerges as a way of understanding the environment inserted in its cultural and political perspective, considering that it is articulated with the curriculum concept, considering that the curriculum is a social artifact.

According to Soares and Frenedozo (2019, p. 98), "a tendency arises in the educational field to insert debates on the environmental issue in educational institutions, giving rise to the term known as curricular environmentalization". It is clear that the term is something new and subject to discussion.

In his doctoral thesis, Miyazawa (2018, p. 56) states that "environmentalizing teaching means inserting the environmental dimension where it does not exist or is inadequately treated". Therefore, there needs to be a serious commitment between those involved in this process.

Environmental Education is vital in the elaboration of meanings and actions that overcome equity and the reduction of consumerism of industrialized products, supporting the desired sustainability. In the view of Oliveira and Neiman (2020), it aims to make people aware that environmental issues are linked to their routines and that the resolution of such issues requires everyone's commitment and cooperation, developing citizen and sustainable attitudes. Alves (2014) points out that despite the 'good intentions', human activities degrade nature and do not propose concrete solutions regarding the imminent environmental collapse, this would undoubtedly be the most sensitive and urgent theme of contemporary times.

For Inocêncio (2012), EE emerges as an area of knowledge capable of acting on the civilizing conflict, greater than the environmental one. Although educational policies exist, the conventional view of transmitting content, with isolated activities, and not for the sake of social transformation is frequent. Dias and Bomfim (2011) classify EE as Conservative and Critical, the first focused on changes in behavior and attitude, and the second problematizing the real roots of the problem. The National Curriculum Guidelines for Environmental Education (DCNEA), Resolution nº 2 (BRASIL, 2012), considers work, production and consumption linked to environmental issues, emphasizing in article 5 that EE is not an impartial activity, and rather, it is wrapped in values and worldviews and, thus, assumes its political and pedagogical dimensions in educational practice. Besides, they emphasize an interdisciplinary and transversal approach, not restricted to a discipline, but, according to article 6, overcoming the depoliticized, uncritical, naive and naturalistic view.

According to Ruscheinsky (2014), curriculum environmentalization is a way of inserting the theme of the environment in the school curriculum, connected to the praxis of higher education training, since the year 2000. This is a permanent and dynamic process, an institutional and transversal commitment as far as to teaching, research, extension and management, integrating sectors and the university community (FIGUEIREDO; GUERRA; CARLETTO, 2014).

Public policies produce, based on the accepted assumptions, education that considers the critical reflection of the environment as a right for all, and it is the university's role to enable such spaces, guided by ethics and environmental integrity. With regard to teacher training, initial training is able to compose a way to build an educator who reads and interprets the needs of his space and plans actions contemplating the environment in its multiple dimensions. Thus, there is a legal support regarding the need to address this issue, although EE is not restricted to the sphere of formal education, schools are still the space where individuals spend part of their time, form themselves as subjects, elaborate knowledge, experimentation and critical vision, from which comes the need to punctuate the subject in such spaces, exercising citizenship. The lack of teacher training corroborates the issue of initial training, for which the DCNEA, in article 11, provides for the need for initial and continuing training for the socio-environmental theme (BRASIL, 2012).

The biggest challenges of Environmental Education reside in the low stimulus to research and the non-integration of the teaching staff, that is, basically lack of information, investment and training. In this follow-up, field activities and interdisciplinary environmental projects could be very promising. Children could acquire environmentally sound habits, taking their teachers, not just science teachers, for example, and taking those habits home and with their families. The teacher must understand the responsibility he assumes in a classroom, and outside of it he also frankly affects his students, especially children.

Therefore, since not all teachers are trained in science, training courses are needed for teachers, allowing them to teach the basic precepts, and with the continuity of the courses they can improve (REIS; SEMÊDO; GOMES, 2012).

According to Sauvé (2016, p. 290-291) it becomes necessary to have an Environmental Education aimed at the acquisition of values, strengthening a healthy and respectful relationship between human beings and the environment:

> Environmental education challenges us around living issues; it responds to greater concerns. It makes us learn to collectively reinhabit our livelihoods, in a responsible way, based on values that are constantly clarified and affirmed: learning to live together – among us humans, and also with other forms of life that share and make up our environment. From a culture of consumerism and accumulation, driven by ready-made ideas, it can lead us to a culture of belonging, critical engagement, resistance, resilience and solidarity.

Schanbach (2010) argues that for there to be an environmental conscience, it is necessary to unite all areas of knowledge, apart from technology, with a view to an integral action of the social body in defense of the environment. While all species have a right to life, the human species has used all others for their own benefit, manipulating physical and chemical processes and destroying nature. There are numerous challenges in this segment, and one is to develop a new citizen ethic, and EE is mandatory, curricular and in training, so that they can challenge themselves and plan transformative attitudes.

Considering this situation, the following research problem is highlighted: how is environmental education being worked on in formal spaces? The general objective is to analyze the importance of formal environmental education in citizen awareness. Regarding the definition of specific objectives, the following was established: to investigate the adoption of environmental educational activities by public schools; understand how environmental initiatives conducted in public schools can impact citizen behavior; to investigate positive and negative issues of teaching experiences with the environmental theme, carried out in formal teaching spaces.

ENVIRONMENTAL EDUCATION IN FORMAL SPACES

The environmental crisis requires the participation of each individual and the school is a distinct environment to form citizens and develop values, with regard to consumption and waste disposal, although it has not yet reached its potential. In formal education, EE is curricular developed in public and private institutions, being a permanent, inter and transdisciplinary educational practice, for any level and type of education. Elementary and high school contents are made up in PCNs, public policies can also promote educational and informational campaigns on the subject, such as non-formal actions, as well as contents that provide sensitization and empower society for Conservation Units, raising awareness among farmers and activities aimed at ecotourism (HENDGES, 2010).

Chassot (2003) emphasizes the school as a formal entity, but that in a globalized world, it is externalized, there seems to be a contraversion in the flow of knowledge, from the community towards the school. Indeed, the school must review its role. While science and technology are fundamental to economic and social growth, the sciences have influenced educational reforms, and the topics of environmental education, health and sex education began to be incorporated into curricula as cross-cutting themes (FERREIRA, 2013).

One of the biggest challenges for schools is the continuation of the proposed projects, and there are several factors that influence this, such as the size of the school, the number of students and teachers, the teacher's willingness to train, the goodwill of the management, changes in the school routine, investments, among others. In addition, projects are often not accepted because they are understood as an order, an extra task to

be fulfilled by already overloaded teachers. Silva (2017) indicates some multidisciplinary techniques starting from a Political-pedagogical Project that conjectures the space where it is inserted, the listing of the problems faced by the community, reflection and search for solutions, debates between teachers and contents, among others. Depending on the school space, the school space itself would be useful, such as green areas, vegetable gardens, composters, composting, garbage recycling, ecological trails, recovery of springs, among others.

An environmental education project will only be successful if it is pleasurable, otherwise no individual mentality will be changed. It is up to the school to correlate environmental issues and the community reality, so that students perceive the real world. Such a vision must take place at all levels of study, transforming the school into a social space, in which the learner is sensitized to environmental crises, so that he can put into practice what he learned at school. Responsible citizens derive from environmentally correct school routines (NARCIZO, 2009). The actions can be varied, with lectures, workshops and field trips, always with a view to projects that improve the quality of life of the community.

THE EXPERIENCES OF ENVIRONMENTAL EDUCATION IN FORMAL SPACES

Despite differences between opinions and locations, the EE experienced in schools is still hypothetical, implemented in thematic projects, and not articulated with the curriculum and other areas of knowledge. Freitas (2016) carried out a survey in 651 public schools in the Federal District and in the Department of Education, between February and November 2014, to observe the existence and practice of EE. It was observed that EE remains with the characteristics of conventional education, lacking real curricular changes, and fragmentation remains; the disarticulation between actions; the discontinuity of the projects started and the teachers' objection to working with EE. Interdisciplinarity and transversality are precepts desired in EE activities in schools, which was not possible to be perceived in the public network evaluated, probably due to insufficient continuing education, failures in planning and restriction to the subjects of Natural Sciences, Geography, Portuguese Language and Mathematics, superficially, not reaching the proposal. Obstacles were also observed, such as the collection of information, contacts with the secretariats and lack of interest on the part of school management.

Viegas and Neiman (2015) conducted a bibliographic research on EE practices in the formal education space, between 2007 and 2012, and observed that 317 articles were published, where 34.4% were about theoretical conceptions, 25.6% about practices in the formal education, 81.5% of the studies were in public schools and 6.2% in private schools, the rest in both. As for the level of education, 30.9% of the works were dedicated to elementary education, where the DCNs advocate education, and only 2.5% to early childhood education, showing little interest, which contradicts the general discourse of EE. Regarding this issue, Montanhim, Caron and Cinquetti (2011) emphasize the difficulty of early childhood education teachers in proposing environmental activities for children, and based on them changing their attitudes, which is a deficiency to be remedied.

Another study analyzed the works presented at the IX Meeting of Research on Environmental Education (EPEA) in 2017, with 128 approved works, the Research Discussion Group (GDP) on EA and Non-School Context had twelve studies, only 8.5 %

of the total, a part of the work was dedicated to environmental protected areas, extension projects in universities, and others did not seem to fit the research criteria. Papers on public policies were also admitted, superimposed on conservation units and environmental licensing, in addition to community workshops and municipal environmental education projects. The reflections carried out allowed us to observe that EE has expanded annually, awakening new studies and students, whose continuity is significant for EE research, a multiple area, which supports different pedagogical practices, with a view to overcoming the modern environmental crisis (LOPES; BUENO; SAISSE, 2018).

A survey was conducted with teachers trained in Biological Sciences, Geography, Chemistry and Pedagogy, with time in the profession between five and 25 years. Professionals reported difficulties about EE from the school perspective, and non-formal spaces functioned as a support, interdisciplinarity was also suggested, especially through resistance and other subjects with the theme; the workload; the broad contents to be fulfilled; and the lack of appropriate space in schools. The lack of attractiveness for the student was reiterated, which corroborates the issue of the lack of preparation of the teacher (MARTINS; TEIXEIRA; SOUSA, 2017). That said, such difficulties culminate in the superficiality of environmental education. Apparently, the low effectiveness of educational actions is related to resistance or lack of knowledge of transversality and interdisciplinarity. The lack of adequate space in schools could be complemented by non-formal spaces, especially in the environmental area, Silva and Grynszpan (2015) defend this idea, so that non-formal spaces exceed the possibilities that formal education allows, as time and space would be more appropriate, contemplating issues more transversally. In this sense, partnerships are essential.

In the year 2020, during the COVID-19 pandemic, the theme of teachers in distance learning has been demeaned. A point highlighted is the lack of tools necessary for distance education; as for the teachers, they are overloaded and with immense difficulties with the available tools, especially in the public network. Alves and Mamede (2020) investigated the municipal network in Campo Grande-MS and observed that online access was not as frequent as imagined, often being printed materials and removed by students at school; some teachers felt uncomfortable using their personal media for classes; student feedback has been evasive and frivolous; and the question of evaluation remains unclear. Basically, what is observed is the application of the same face-to-face matrix with technology resources, perhaps it is time for the contribution of EE to be active in the elaboration of social relations capable of overcoming the observed inequalities.

METHODOLOGY

For the development of this study, a literature review published from 2006 to 2020 was carried out in the Google scholar databases, in the Scielo platform and in the CAPES theses and dissertations database. For the search, the keywords were used: Environmentalization, Formal Space, Environmental Education and Teaching and their corresponding words in English Environmentalization, Formal Space, Environmental Education and Teaching. Exclusion criteria were: articles that did not present significant contributions to this work or that approached the subject in an irrelevant way.

In order to choose the articles, a critical, questioning and selective reading of the selected publications was carried out in

order to highlight the aspects most related to the research problem (BENTO, 2012). The theoretical framework is essential to provide the theoretical basis necessary for the robustness of the work, allowing the discussion of ideas among the most relevant authors in the researched area. According to Martins and Pinto (2001), this procedure is essential for understanding concepts, as well as for conducting new studies on the subject.

Regarding the type of research, qualitative research was chosen, an important point of reference for the researcher, who is responsible for extensive research and its critical evaluation (CAJUEIRO, 2012). Thus, a methodological procedure guided by qualitative research evaluates the information obtained and is able to present relevant conclusions, according to a given predetermined research problem (ROTHER, 2007). The qualitative research in this study is exploratory, as it is the method that has greater identification with the methodology of Narrative Bibliographic Review (Literature Review), whose methodology was adopted for the development of this article. An important concept about exploratory research is highlighted:

> Exploratory research is when the research is in the preliminary phase, its purpose is to provide more information about the subject that we are going to investigate, enabling its definition and design, that is, to facilitate the delimitation of the research topic; guide the setting of objectives and the formulation of hypotheses or discover a new type of approach to the subject. It generally takes the form of bibliographic research and case studies. (PRODANOV; FREITAS, 2013, p. 51-52).

The Narrative Bibliographic Review methodology aims to search databases, identify articles, evaluate them and discuss them. It is verified that the Narrative Bibliographic Review, the method of choice adopted, aims at the apprehension and analysis of the fundamentals of a scientific nature, that is, of works of scientific impact, published in periodicals, newspapers and/or other national scientific means and/or international (DEMO, 2009; SOUSA et al. 2018).

RESULTS AND DISCUSSION

Through Environmental Education, there are many possibilities to interfere in the behavior of human beings in order to help them to become critical and aware of their actions. One of the spaces in which there is a great possibility of working on Environmental Education is the school, recognized as a privileged place for the construction of dialogues, values and principles that help in student education.

Based on the twenty analyzed works, some barriers were noticed for not working with environmentalization in schools, of these barriers, five works point to the teacher's resistance to insert the socio-environmental dimension in their classes, since they are used to working the curriculum of in a plastered way and with no interest in getting out of complacency, but that is possible, as long as you work seriously for it. Regarding the lack of public policies for the implementation of socio-environmental themes in the curricula, ten studies showed that little has been done in recent decades and that urgent actions are needed so that the environment can be seen as a priority, knowing that its relationship with man is a matter of life. Two works showed that it is possible to carry out environmentalization in schools and point out possible ways to achieve it. One of them is the collective and active participation of all those involved in the teaching and learning process.

Still on environmentalization, three works recorded the lack of interest of management teams that did not show interest in developing

projects on environmentalization and that work on environmental issues with their faculty only on commemorative dates.

However, this review concluded that the process of environmentalization in formal teaching spaces is still something new and subject to discussion. With the more effective participation of professors, the work with environmentalization proves to be more efficient, since many professors only comply with the provisions of the annual teaching plans.

FINAL CONSIDERATIONS

According to the above, there are schools that have enormous potential to support formal education, with appropriate spaces and partnerships with other places, so that they can fulfill the established in the DCNEA, including observing nature, understanding the ethical and political extensions, to develop responsible projects and actions regarding the environment, to carry out collective work, consolidating the participatory and collective spirit. However, other schools and teachers identify that training work is necessary, where the educators themselves will get to know the non-formal spaces of environmental teaching, in order to adopt them in formal and non-formal education, benefiting the teaching of students.

Environmental education has been elaborated from various conceptions and approaches, with different paths and modalities for educational practice. Like other areas of knowledge, it has flaws and can be generalist, without contributing to the objectives, although it represents change and the insertion of environmental extension as a new concept. The EE practices, in the formal space, show a predominantly public outline and focused on elementary education, especially in some regions of the country, such as the Southeast. Such practices are proposed by researchers, supported by the government or the private sector, which include students in the school space. Thus, they must include interdisciplinary and transversal themes, under a critical perspective, linked to the methodological planning of project-based education, for example. Actually, such proposals are still not integral or non-reproducible, with methodological and implementation gaps in the legislation regarding interdisciplinarity. Knowledge of such practices could be one of the fundamental assumptions in the evaluation of the academic and scientific panorama, as well as a guiding criterion for specialists in the area.

The role of the educator, the teacher, is crucial in EE, which must abandon the conventional paradigm of content transmission to adopt new research tools, different techniques inside and outside the school, such as the social media, trails and debates, with a view to sensitize students to the protection of the environment. Facing social problems is more important than memorizing content, avoiding wasting water is more important than high grades. You can not separate life from nature, everyone must commit to the world. Only this way will education be able to transform the world, and for that, teachers must prepare themselves for contemporary difficulties, and this duty is not for science or biology teachers, but for everyone, in order to understand themselves as a participant in the environment. The proposition of solutions to problems, in a way that respects nature itself and does not generate more long-term damage is urgent, and it is in the academic youth that these solutions may emerge.

In the meantime, the school space is the place where the student reflects on the concepts and contents, but must also be challenged to action, expand their interactions, take a critical position. The use of technologies and social media can also

be an alternative to include young people in pedagogical and environmental actions, in addition to the need to include teachers themselves in this theme, who show a lot of resistance, but which could be a valuable interrelationship device.

Indeed, society, the Government and the school must establish partnerships to respond to the environmental demand, disparities and successful cases must be publicized; as well as the alteration of spaces creating educational environments; investment in human resource training, infrastructure, tools and support that can maintain EE as a primary extension of education.

Thus, in summary, the present study analyzed environmental education in formal spaces, especially in public schools. It is also suggested that other studies be developed to discuss and strengthen the theme of this research, taking into account the evolution of society and the environment itself, as well as the main authors in the area of education and environmental education.

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