



The concept of labor in Critical Environmental Education: paths for Research and Participation in Teacher Training

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O trabalho na Educação Ambiental Crítica: caminhos de pesquisa e participação na formação docente

RESUMO

Uma educação ambiental (EA) que não analisa questões sociais e políticas não é capaz de contribuir para o entendimento das raízes dos problemas envolvendo o ambiente. O estudo das relações sociais e de produção da vida por meio do trabalho é fundamental para compreender a ligação histórica que o ser humano estabelece com a natureza e, para além disso, apontar enfrentamentos à crise ambiental, sintoma de uma crise mais ampla, civilizatória. Mais especificamente na formação de professores, sujeitos essenciais à abordagem da EA na escola, é importante que não haja fragmentação e desconexão da realidade em que professores e estudantes estão imersos. Assim, analisar e compreender a relação entre escola, comunidade e o ambiente do seu entorno em sua construção histórica, principalmente a partir da questão do trabalho, é uma de nossas apostas para a formação de professores e de cidadãos críticos e engajados. Diante dessas preocupações, neste trabalho, objetivamos descrever e analisar parte de um processo formativo de professores (formação inicial e continuada), membros de um Projeto de Residência Pedagógica, que ocorreu a partir da construção e realização de uma pesquisa participante, um mapeamento ambiental, com a comunidade do entorno de uma escola municipal de Lavras-MG, nossa escola parceira. Por meio da pesquisa participante, da análise de conteúdo e das entrevistas realizadas na comunidade escolar, observamos que o estudo das relações de trabalho, assim como as demais particularidades da comunidade local podem trazer elementos de grande relevância para o exercício da EA crítica, principalmente no contexto da formação docente.

PALAVRAS-CHAVE: Mapeamento Ambiental. Pesquisa Participante. Educação Ambiental Crítica.

The concept of labor in Critical Environmental Education: paths for Research and Participation in Teacher Training

ABSTRACT

An environmental education (EE) system that does not analyze social and political issues cannot contribute to understanding the roots of problems involving the environment. The study of social relations and the production of life through work is fundamental to understanding the historical connection that human beings establish with nature and to pointing out ways to confront the environmental crisis - a symptom of a broader, civilizing crisis. More specifically in teacher training programs – essential subjects to the EE approach at school – it is important to not be fragmented and disconnected from the reality into which teachers and students are immersed. Therefore, analyzing and understanding the historical relationship between school, community, and their surrounding environment, especially regarding the concept of labor, is one of our bets for the training of critical and engaged teachers and citizens. In view of these concerns, we aim at describing and analyzing part of a teacher training program (initial and continuing) for members of a Pedagogical Residency Project, which occurred through the elaboration and carrying out of a participatory research study – an environmental mapping – with the community surrounding a local partnering school in Lavras-MG. Through this participatory research, content analysis, and the interviews with community members, we observed that the study of working relations, as well as other particularities of the local community, can bring elements of great relevance to the exercise of critical EE, especially in this context of teacher training.

KEYWORDS: Environmental Mapping. Participatory Research. Critical Environmental Education.

El trabajo en la Educación Ambiental Crítica: caminos de investigación y participación en la formación docente

RESUMEN

Una educación ambiental (EA) que no analiza cuestiones sociales y políticas no es capaz de contribuir a la comprensión de las raíces de los problemas que involucran al medio ambiente. El estudio de las relaciones sociales y de producción de la vida a través del trabajo es fundamental para entender el vínculo histórico que el ser humano establece con la



naturaleza y, más allá de eso, señalar enfrentamientos a la crisis ambiental, síntoma de una crisis más amplia y civilizatoria. En la formación de docentes, sujetos esenciales para abordar la EA en la escuela, es importante evitar la fragmentación y desconexión de la realidad en la que están inmersos tanto docentes como estudiantes. Así, analizar y comprender la relación entre la escuela, la comunidad y el entorno que la rodea en su construcción histórica, especialmente a partir de la cuestión del trabajo, es una de nuestras propuestas para la formación de docentes y ciudadanos críticos y comprometidos. Ante estas preocupaciones, en este trabajo nos proponemos describir y analizar parte de un proceso formativo de docentes (formación inicial y continua), miembros de un Proyecto de Residencia Pedagógica, que se llevó a cabo a partir de la construcción y realización de una investigación participativa, un mapeo ambiental, con la comunidad del entorno de una escuela municipal de Lavras-MG, nuestra escuela asociada. A través de la investigación participativa, del análisis de contenido y de las entrevistas realizadas en la comunidad escolar, observamos que el estudio de las relaciones laborales, así como las demás particularidades de la comunidad local, pueden aportar elementos de gran relevancia para la práctica de la EA crítica, especialmente en el contexto de la formación docente.

PALABRAS CLAVE: Mapeo Ambiental. Investigación Participativa. Educación Ambiental Crítica.

1 INTRODUCTION

Environmental Education (EE) became a topic of discussion primarily in the 20th century, driven by the demand for an environmental ideal in society. However, before its formal consolidation as a curriculum project, many aspects of this educational proposal were under consideration. Layrargues (2006) points out that the need to establish a new relationship between humans and nature to mitigate environmental degradation appeared as an imperative for conservation devoid of political discussions, relying solely on a human behavioral alteration. Initially, EE was not intended to undertake a political, ideological role, nor would it critically examine the influence of classic ideologies permeating society with their values and interests. On the contrary, it aimed at fostering the development of a common awareness on the need to reestablish a harmonious relationship between humans and nature.

In Brazil, “the environmental debate began in the country in 1973, throughout the territory under the military regimen” (Loureiro, 2008, p. 4), mainly due to international pressure. This debate leaned towards the conservation of natural resources “strongly based on behavioral and technical aspects and the teaching of ecology” (ibidem p. 4). This conservative approach, focused on behavioral changes, framed EE as an instrumental concept and attributed to it the role of being “the sole means of creating a sustainable development within capitalism”.

Since the 1970’s, EE has been down through many legislative paths. Carvalho (2008) outlines a timeline, from the recommendation of public policies on the I International Conference on Environment, in 1972, to its organization on a national level. Even though this issue had already been a concern, “it was only in the 1980’s and 1990’s that it expanded throughout Brazil and became part of a significant array of public policies and social movements” (Carvalho, 2008). However, as the environmental issue grew through a behavioral aspect, there have also been factors that spurred the emergence of more critical approaches, which resulted in a multitude of perspectives. Loureiro (2008) notes that

In the 1980’s, the convergence between educators aligned with the pedagogical perspective of Paulo Freire and the critical pedagogies [...] and the admission of environmental activists with more critical views to higher education institutions resulted in the materialization of proposals and actions that understood environmental issues as stemming from the social relationships that makes us individuals (Loureiro, 2008, p. 5).

In 1997, with the creation of the National Curriculum Parameters (*Parâmetros Curriculares Nacionais – PCN’s*) by the Department of Secondary Education in the Ministry of Education, EE was established as a cross-cutting theme. This interdisciplinary approach, also described in the National Environmental Education Policy (*Política Nacional de Educação Ambiental – PNEA*) highlights the necessity and significance of developing EE in an integrated and comprehensive manner in regular education, not only as a standalone course, but also from an interdisciplinary perspective to debate environmental issues.

However, despite EE being still proposed as one of the contemporary cross-cutting themes (BNCC, 2019, 2022), our experience and several research studies point out that hardly ever is EE perceived as an integral part of the school curriculum. Instead, it has often been

presented as a subset of Ecology in courses such as Science, Biology and, at times, Geography. This fragmented approach, often influenced by a conservative, romantic and individualistic bias, fails to encompass the several aspects of nature, or promote reflection on the process of social construction and its impact on the environmental crisis. Costa and Grynszpan (2007) discuss some possible reasons, including lack of time, space and studies that relate environmental issues to social problems. Thus, this fragmentation of knowledge, prevalent in many fields of expertise, limits the understanding of these problems and creates an illusion of perfect mastery of these topics (Trein, 2008). Bernardes and Prieto (2013) postulate that

Environmental Education, as a continuous process aimed at fostering citizenship and promoting fair, empathetic, and sustainable development, serves as the means, not an end. Hence, traditional contents will only be meaningful to society and to those who teach them if they are integrated into a comprehensive educational project of transformation, starting with schools, involving the school staff and the community, rethinking physical space and school administration, teachers' practices, and learners' participation, that is, discussing the entire dynamic of relationships within their environment (Bernardes; Prieto, 2013, p.180).

Thus, recognizing the need for a comprehensive approach to environmental issues for a liberating educational formation, it is crucial to focus on a critical analysis of contemporary issues, observing their historical processes as "it is essential to understand how we have interacted with nature and how living beings have interacted with each other" (Trein, 2008, p. 41). To establish these bonds and not position human beings as outsiders, we must critically understand how this relationship has historically unfolded.

From a philosophical and sociological perspective on the environmental crisis, Layrargues (2006) considers **culture** and **labor** as mediating elements in the human-nature relationship, forming the basis of Critical Environmental Education. Culture reflects values that influence human interactions with nature, that is, with the idea of dominion over nature being a determining factor in the environmental crisis. However, focusing solely on culture results in a generic portrayal of humans as the main agents, overlooking the differentiated responsibilities of social actors. Thus, only by also considering labor as the root cause of the environmental crisis can we comprise all aspects, as it "underpins the production of wealth and its distribution in society or, conversely, its concentration on the hands of few" (Layrargues, 2006, p. 3).

As a product of human activity, culture derives from labor and, as such, comprises the transformation of nature by humanity and the subsequent transformation of humans themselves. Hence, by aligning these elements, we gain a broader perspective: while culture may mitigate the agents contributing to the environmental crisis behind a generic anthropic action, labor enables us to discern the differentiated actions of agents in a capitalistic society divided into classes. Furthermore, this alignment allows us to understand how social organization determines individuals' place, interests, occupations, and capacity for thinking, acting, and producing the human world.

Going back to the materialistic, historical definition of labor, as proposed by Marx, Trein (2012) identifies it as the distinguishing element separating humans from other animals. Through a teleological process, individuals establish intended purposes and act to meet their needs. This fundamental characteristic of labor involves the transformation of nature; thus,

labor can be defined as an activity that basically shapes a relationship between humanity and the natural world. It entails the transformation of our environment “to ensure our survival as individuals and as a species” (Trein, 2012, p. 296). Thus, given the current societal model, where dominion over nature is intrinsically linked to the exploitation of human being itself, it is imperative to understand the differences between production and appropriation of natural resources, according to each social group, to move beyond the generic portrayal of subjects and understand the different impacts caused by specific groups and countries.

When labor is narrowed down to a commodity, its autonomous nature is obscured, and alienation becomes a habit. Each social group is marked by a specific labor system, and when we focus on paid labor, we witness how the capitalist system perpetuates social relations between capitalists and workers and exploits both nature and human beings. Nature and labor are commodified and placed under the need for profit (Trein, 2012). Thus, we must critically analyze the societal reality we inhabit to critically investigate the culture of performance, development, and progress, which are common to the capitalist system. Trein (2008) affirms that

Critical thinking, in this sense, plays a relevant role in shaping individuals that can criticize the current societal model, and, beyond criticism, which is always necessary, actively participate in the fight for building a society where exploitative relations are overcome. (Trein, 2008, p. 43).

Thus, it is evident that adding labor organization issues into critical EE studies is essential, not only to understand their impacts on nature, but also to reveal the implicit relationships in the current social organization and unveil the political, social, and historical aspects that permeate the human-nature relationship mediated by labor (Trein, 2012).

Nevertheless, addressing the many aspects integrating both the labor world and the environment, such as sanitation, transportation, housing, water resources, fauna, flora, among others, is not an easy task, both methodologically and due to the historical process to which we are submitted, especially with the fragmentation of basic school contents. There exists an intrinsic relationship between the simplification of school subjects and the creation of workforce favoring capital, perpetuated by a skill-based model that diminishes the importance of critical thinking. Moreover, a key assumption to build the theory behind this hegemonic model and the creation of workforce is to decrease the importance to understand a society divided into classes (Rodrigues, 2008).

The promising contextualization offered by the cross-cutting nature of EE poses a major challenge, given that teacher education oftentimes fails to address the issue in a contextualized manner. To do so, programs such as the Institutional Teacher Initiation Scholarship Program (*Programa Institucional de Bolsas de Iniciação à Docência – PIBID*) and the Pedagogical Residency Program (*Residência Pedagógica – RP*), sponsored by the Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal e Ensino Superior – CAPES*) and others that comprise the National Teacher Training Policy of the Ministry of Education (MEC) may be fundamental. These training programs foster the connection between beginner teachers and professionals both in basic and higher education, promoting more in-depth studies, an understanding of social demands, and a gradual immersion

into pedagogical practices. Fontoura (2019) highlights the importance of these programs for teacher training and emphasizes the need to understand the local context and promote collective participation in elaborating pedagogical interventions. According to the author,

We may assert that schools are institutions inserted into a broader social and political context, and their pedagogical proposal, which must be collaboratively elaborated to achieve its goal of significant learning, should be considered in this light (Fontoura, 2019, p. 18).

However, with the coronavirus pandemic between 2020 and 2022, the engagement of beginner teachers in activities and projects was restricted to online platforms. To address this limitation, we conceived an idea to carry out a research study involving the school community and the surrounding area, without having to enter the institution, that is, with outdoor activities.

Aiming at constituting individuals who understand and act in their environment, a group from the Pedagogical Residency (PR) in Biology at a federal university in southern Minas Gerais devised a participatory research study involving environmental mapping to identify key elements for fostering citizenship within the critical environmental education perspective.

In this sense, this work aims at describing part of the training process in this Pedagogical Residency through a qualitative, collective research study conducted by the PR group between February and May 2022, engaging the school community of an institution in Lavras, Minas Gerais. Participants in this study included students, tutors, and the lead teacher, focusing on the concept of “labor” not only as a means of survival, but also as a fundamental component for understanding and analyzing critical environmental education and as a potential catalyst for individual emancipation.

We expect this work to provide clarity in analyzing the environment across multiple dimensions to exercise critical EE, while giving voice to folk knowledge, often neglected by science. Furthermore, we hope that participants will reflect on the contradictions in social relationships and seek to engage in relevant discussions from which they are often excluded.

2 OBJECTIVES

This work aims at reporting on the analysis of socioenvironmental issues within the community surrounding a local school in Lavras-MG, conducted through an environmental mapping conducted collectively carried out by a group of Pedagogical Residents. Additionally, this study seeks to delve deeper into the concept of “labor” as a contribution to initial and continuing teacher training and to the environmental education as an integrating axis.

3 METHODS

This is a qualitative research study, as it comprises several aspects pertaining to the subject under study. Minayo (2010) describes this sort of research as pointing out the concerns about elements of reality that are usually disregarded because they cannot be quantified. Hence, we opted for this type of investigation as it comprises the specifics and the subjectivities

of the local community, recognizing that “temporality, dynamism, and specificity are fundamental characteristics of any social issue” (Minayo, 2010, p. 13).

Under the umbrella of qualitative methodology, we used the Participatory Research method (PR), which aims at involving the participants in the analysis of their own reality, creating a closer bond between researchers and the participants. Demo (1984) differentiates participatory research from traditionally approaches used in academia, which tend to be stereotyped by the collection and treatment of empirical data. Alternatively, PR offers a more comprehensive path by involving various agents that influence reality and contributes to the participants’ educational processes.

In this study, participatory research occurred through environmental mapping (Meyer, 1991) of a school community to enhance the teacher training of Pedagogical Residents involved in the target-school and to reflect on the importance of social aspects and labor as mediators in the human-nature relationship. This mapping allows us to organize an inventory of social relationships established among humans and between humans other living beings, thinking about issues of domination over natural resources and spotting the origins and the consequences of environmental problems.

Environmental mapping as a proposal of critical EE was first introduced by Meyer (1991), who sought to focus on interdisciplinary approaches and to understand the environment. Given that natural phenomena and the human action constantly change environment, the pedagogical proposals must encompass these modifications. To Meyer (1991),

The classroom, the neighborhood, the houses, the workplaces, the streets are perfect places to conduct research studies, interview people, collect data, register facts, observe how the space is occupied. In other words, to read the environment and create dialogue with the people’s knowledge (Meyer, 1991, p. 42).

A mapping process can serve as a teaching-learning experience not only for students, but also for training teachers and professionals involved in the process. This diagnosis may also be a great ally to build a participatory Political Pedagogical Project (PPP), incorporating movements towards recognizing local socioenvironmental issues, understanding socially driven changes in that context, and including demands from the school community into the PPP, as these elements may subsidize the elaboration of socially relevant interdisciplinary pedagogical practices.

The mapping was conducted through area observation and interviews with residents and collaborators who attend the school vicinity. We opted for interviews due to their flexibility and ability to provide detailed information about the research subject and several aspects of social live (Gil, 1999). The group of Pedagogical Residents responsible for planning and conducting this research consisted of 10 participants, including three graduate students, two basic education teachers, and the main advisor for this project.

We interviewed 21 people, initially selected randomly from the area and, afterwards, identified by residents and school attendees (Tozoni-Reis, 2007). Because the one of the aims of this research was to improve the initial and continuing training of teachers, we collectively elaborated the interview questions to encompass as many aspects influencing the local area as possible. Afterwards, the Resident students used these questions in the interviews.

Data analysis was carried out in pairs, with each pair focusing on studying a specific axis. It is noteworthy that all questions concerning work and free time will be analyzed in depth.

From the data collected in the interviews, we conducted a content analysis to check for patterns that could promote reflection. In addition, we organized this study into three themes, which were classified and analyzed to group elements within the same concept (Minayo, 2010). We chose this approach to create units that group recurrent information and foster reflection. To maintain the anonymity of the interviewees, they were represented by capital letter E followed by a sequence number (E1, E2, E3, etc.).

4 RESULTS

To start reflecting upon the research process through environmental mappings and their importance, we organized meetings and field trips, both at the higher education institution and in the neighborhood chosen for investigation.

The first field trip took place within the university, where the lead teacher facilitated reflections focusing on the elements that form an environment, such as natural components, buildings, transportation, commercial establishments, among others.

Additionally, the tutor, who works at the school under study, helped us identify key elements in the area, such as older, more influential residents who could provide detailed information about the neighborhood. It is important to maintain the anonymity of the interviewees, since our focus was not to collect individual information but to search for patterns that could help us understand the local society. While we recognize the student participation in this study to see themselves as political agents capable of altering their own environment, this participation was not possible due to the restrictions imposed by the pandemics and the long working hours demanded from the schedules of teachers. Nevertheless, this may be an alternative for future research endeavors, especially if allied with educators from other disciplines. In April 2022, the resident students, main teacher, and tutor visited the neighborhood to gain a deeper understanding (FIGURE 1).

Figure 1 – First visit to the neighborhood



Source: Authors, 2023.

At first glance, the neighborhood seemed to be a calm place, consisting basically of residences and a few businesses. near the school is a recently restored park. Residents and



school staff mentioned that the area used to be littered with trash, although it has now become a meeting place for students and parents who pick their children at school.

After due observation and information gathering, we learned about a creek crossing the neighborhood, an intermittent river which, in dry seasons, is taken over by sewage and emits an unpleasant odor in the area. This information came as a surprise to the school's Geography teacher who, despite residing in the area for some time, was unaware of it.

Near the river is a small field for horses. However, the area is also littered with trash (FIGURE 2), which represents great risk to locals as it contaminates the soil and water, increasing the risk for diseases, as it is closely related to the vector proliferation.

Figure 2 – Trash littered in improper places



Source: Authors, 2023.

After a first visit to recognize the area, the group divided into pairs to conduct the interviews in the neighborhood. Residents warmly welcomed the students resulting in interviews lasting longer than expected. Their welcoming and attentive attitude fostered conducive atmospheres for data collection, enabling the interviewers to gather information that had not been obtained at first, such as the absence of drugstores and banks in the area.

Regarding work and free time, we collected some important information to understand how labor is seen in the area. After analyzing the responses, three categories emerged summarizing the most recurring elements, as described in Table 1.

Table 1 – Categories, description, and frequency

Category	Description	Frequency
Work is restricted to the paid work	In this category are grouped all the responses in which the interviewee understands labor as paid work	20
Volunteering is not related to the concept of “job”	In this category are the responses in which volunteering is considered a free time activity	5
Natural areas are considered a refuge for leisure	In this category are the answers that discuss leisure in natural areas	6

Source: Authors, 2023.

4.1 Work is restricted to the paid work

This category encompasses responses where work is acknowledged solely as paid employment. The questionnaire elaborated by the group, even though it was not mandatory, started with the question “Do you work?” and most answers referred to paid employment. For instance, Interviewee E16 reported spending most of her day (from 6 a.m. to 7 p.m.) at a grocery store with her husband; however, she does not consider it as working, but as helping her husband. Similarly, Interviewee E13, when questioned about working, stated being retired for several years and has not worked ever since, despite maintaining activities such as clearing weed on vacant lots and caring for the house.

It is important to distinguish between work and paid employment. Several authors concentrate on this issue, such as Trein (2012) who defines work as the distinction between humans and other animals, especially for their elaboration of purpose and intention to fulfill

their needs. However, the transformation of nature has changed the meaning of work, when development became focused on industrial production and consumption, and both nature and labor have been commodified. When labor is narrowed down to a commodity, it loses its inherent autonomy, and everything and everyone it refers to is contaminated by commodification and alienation (Trein, 2012).

In this context, education plays an ideological role in reproducing existing social conditions. In other words, schools become one of the main weapons to spread social values, as they theoretically enroll children from all social classes and groups, and imparting a great amount of explicit and implicit knowledge covered in the dominant ideology (Layrargues, 2006).

Not rarely do we see the sentence “one needs to study to become somebody in life”, associating the right to education with the working class, where “becoming somebody” is intrinsically related to being able to have profit. If an individual cannot sell their work, they are relegated to the “nobody” class. It is crucial to point out that we do not intend to blame the education institutions for maintaining the current system; rather, we wish to acknowledge and reflect on their difficulties, while highlighting their potential to transform this reality focused on commodification and exploitation.

The production of life is not intrinsically exploitative. However, in the contemporary society, where the domination of nature is directly related to exploitation, even of human beings themselves, we can see similarities that affect the business world and environmental issues.

Therefore, it is no surprise that the interviewees, when asked about work, automatically refer to activities that pay, even though these activities fail to fulfill them as individuals, but merely provides means for a poor survival. Instead of fostering understanding of the world and self, distinguishing humans from other species, and promoting gradual transformation and construction of the human world, these jobs only push them away from their own humanity.

4.2 Volunteering is not related to the concept of “job”

In this category are the answers in which volunteering is not considered formal employment, but rather a leisure activity that fulfills the individual. According to Law 9,608/98, article 1: “Volunteering is considered, for the purposes hereof, a non-paid activity undertaken by an individual or a public entity of any nature whatsoever, or even by a non-profit private institution...” (Brasil, 1998).

Many of the voluntary activities mentioned in the interviews were related to religious endeavors. While it is possible to delve deeper into the matter of religiosity in the community, this research focuses on analyzing the concept of work for this group.

One might define work as the set of tasks performed to reach a goal or an end. For example, Interviewee E8 dedicates his free time to renovating the local church. Thus, volunteering in this context may include both communal purposes, such as improving community facilities, and individual purposes, such as spiritual salvation. Regardless of his personal goals, we understand how interviewee E8 perceives work, because, when he characterizes renovating a temple as his “free time”, he separates this activity from the one where his effort is sold.

Religion is a cultural phenomenon and, as a human production, culture derives from labor since it comprises the transformation of nature by humanity and the consequent self-transformation. Consequently, adding the concept of volunteering to what should be free time further widens the gap caused by the commodification of labor, as remuneration becomes decisive to define what is work and what is not.

Interviewee E19 may be the best representation of volunteering, because she dedicates almost all her free time to church services. Furthermore, the personal fulfillment derived from these activities is evident. To her, it is not about profit, but rather the pleasure these activities provide. However, one should exercise caution when analyzing voluntary work to avoid romanticizing exploitation disguised as benevolent actions towards institutions that accrue riches.

4.3 Natural areas as refuge for leisure

In this category are the answers that distinguish leisure and recreational areas from residential and work environments. Several interviewees mentioned that leisure spaces are places with trees and wildlife, where individuals can appreciate nature. For instance, Interviewee E18 reported that, in her free time, she and her husband enjoy going for a walk in the university campus, sitting under the trees, and resting. Likewise, Interviewee E21 described frequent visits to her farm, where she raises plants and cares for the animals that live there.

The importance of connecting nature for health and well-being is undeniable. Martins (2022) relates the growing digital intoxication and the reducing contact with green areas (especially after the social isolation imposed by the pandemic) to direct changes in health conditions. The author discusses the expression “nature-deficit disorder”, coined by writer Richard Louv (2016), understanding how urbanization has led western populations to become distanced from natural environments, resulting in physical, mental, and behavioral health issues.

As societies evolved and cities expanded, the distinction between natural and anthropologically modified areas has become more evident. Festozo *et al* (2018) describe that, historically, observing nature in leisure time has been, for very long, an environmental concern deprived from social, political, and economic discussions, being solely focused on nature appreciation, which was common to higher levels of society in their free time.

Not surprisingly, the number of ecological tourism agencies has grown every year. Data from the World Tourism Organization (ONU News, 2022) indicate that conventional worldwide grew 7.5% annually before the pandemic, whereas ecotourism grew at a rate of 20% during the same period. Considering that in 2020, the number of ecotourism trips accounted for 9,7% of all trips in Brazil (as surveyed by the Brazilian Ecotourism and Adventure Tourism Trade Association, ABETA, in 2020) (ABETA, 2020), the estimation is that this number grows even larger. Therefore, the need to establish a connection between human and nature has become a marketing strategy.

Nevertheless, we should not blame this human-nature separation as the reason for the environmental crisis, otherwise we would be stating that these causes are purely cultural and that it should be enough for EE to promote actions to reconnect humans and nature and the problem would be solved. For this same reason, Layrargues (2006) defends that labor should

considered along with culture when analyzing environmental issues, since they are determining factors ranging between the material and the symbolic levels.

From these labor relationships, the world we inhabit is consistently being produced and reproduced. Often based on the exploitation of both the environment and human beings, these relationships are hardly ever chosen by the individuals, who inadvertently end up perpetuating the system. Therefore, to overcome this condition, labor must change, so it will not alienate, but rather foster human development and fulfillment.

Therefore, environmental education plays a relevant role in spaces dedicated to nature appreciation. However, if done without critical thinking, this appreciation may be limited to conservative and pragmatic issues, devoid of ideas of social change.

These issues were discussed among the Pedagogical Residency students, professional educators, and graduate students. We also included other topics, such as the history of the neighborhood, as well as its infrastructure, belief systems and other subjects that may be covered in future research endeavors.

5 FINAL CONSIDERATIONS

The insights collected on how the school community and the residents perceive labor provided very relevant information for the proposed environmental mapping, especially considering initial and continuing teacher training.

A critical understanding of labor commodification is fundamental to practice critical environmental education, as analyzing environmental issues without thinking about the historical process of social consolidation, as well as the exploitation of nature and human beings, can only hide the true causes of the environmental crisis. This enables us to identify productive relationships and the key actors in environmental degradation, wealth production, and its concentration in the hands of a very small percentage of the population. Therefore, individuals must recognize their roles in these life production and nature and humankind exploitation processes.

As mentioned before, environmental education in schools has often been applied through a conservative, romantic, and individualistic bias. Despite being a transversal topic, that is, a topic that should integrate with all other subjects, educators are often offered a fragmented training, which end up being jeopardized. Stringent curricula and the working conditions they are usually submitted to often impede them from engaging in more comprehensive, critical projects. Not only do they lack autonomy, but they also lack the time, which prevents them from creating deeper, more critical projects. Moreover, these are the strategies to create an alienated society that does not ponder about their own reality and feeds the system that limits critical thinking.

Understanding and questioning societal models and thinking about environmental education through broader perspectives place significant demands on educators. We should wonder whether our pedagogical practices contribute to reproducing or transforming the social conditions into which we are inserted.

In this sense, participatory research may be a promising method. Science, in general, does not consider folk knowledge as a source of information. However, when we think about

environmental mapping through participatory research, individuals are invited to reflect upon their role in society, when they are questioned about their daily lives, and historically oppressed groups are granted power of speech, aiming at social transformations.

Because this research was conducted amid COVID-19 pandemic restrictions, students from the target school were unable to participate in this educational and investigative process. We understand this participation could have contributed with students seeing themselves as part of this process of social transformation. Therefore, this is another excellent opportunity for future research.

To ensure that critical environmental education is studied in school as an integrative basis, and nurtures individuals who actively engage with their environment, it is necessary to prepare educators concerned with citizenship in its several aspects. We believe that the entire research process, from collectively defining goals and questions to post-interview discussions has been instrumental to the growth of all participants, especially the Pedagogical Residency training teachers, and the continuing training teachers that joined the group.

Lastly, this mapping allowed us to elaborate a diagnosis of the environment in its multiple dimensions, through all personalities that comprise the school community under analysis. This has proven to be a good method to present local issues to the teacher, who may include these elements in their own pedagogical practices.

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