

## **Disciplinary view of the environmental education practice and its dissociation with non-formal teaching spaces: a discourse analysis of higher education students**

**Visão disciplinadora da prática de educação ambiental e sua dissociação com espaços não formais de ensino: análise do discurso de alunos do ensino superior**

**Visión disciplinaria de la práctica de la educación ambiental y su disociación de los espacios docentes no formales: análisis del discurso de los estudiantes de educación superior**

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### **Emerson Machado de Carvalho**

ORCID: <https://orcid.org/0000-0002-4865-6784>  
Universidade Federal do Sul da Bahia, Brasil  
E-mail: [emerson.carvalho@ufsb.edu.br](mailto:emerson.carvalho@ufsb.edu.br)

### **Rosilda Mara Mussury**

ORCID: <https://orcid.org/0000-0002-8961-9146>  
Universidade Federal da Grande Dourados, Brasil  
E-mail: [maramussury@ufgd.edu.br](mailto:maramussury@ufgd.edu.br)

### **Giovana Graminha Pinheiro**

ORCID: <https://orcid.org/0000-0001-8681-6374>  
Universidade Federal da Grande Dourados, Brasil  
E-mail: [graminha.giovana@gmail.com](mailto:graminha.giovana@gmail.com)

### **Giani Lopes Bergamo Missirian**

ORCID: <https://orcid.org/0000-0002-1737-0329>  
Universidade Estadual de Mato Grosso do Sul, Brasil  
E-mail: [gianimissirian@uemms.br](mailto:gianimissirian@uemms.br)

### **André Luis Corrêa**

ORCID: <https://orcid.org/0000-0002-7303-221X>  
Universidade Estadual de Santa Cruz, Brasil  
E-mail: [alcorrea@uesc.br](mailto:alcorrea@uesc.br)

### **Adriana Kazue Takako**

ORCID: <https://orcid.org/0000-0003-0393-4397>  
Universidade Federal do Sul da Bahia, Brasil  
E-mail: [adriana.takako@ufsb.edu.br](mailto:adriana.takako@ufsb.edu.br)

### **Peolla Paula Stein**

ORCID: <https://orcid.org/0000-0003-2863-7903>  
Universidade Federal do Sul da Bahia, Brasil  
E-mail: [peolla@ufsb.edu.br](mailto:peolla@ufsb.edu.br)

### **Abstract**

This research analyzed the perception of 42 higher education students about Environmental Education (EE) activities in environmental management and explored spontaneous conceptions about an urban green park. Data were obtained in 2016 through a questionnaire based on the Free Word-Association Test methodology and analyzed by the Collective Subject Discourse. In the students conception, the importance of EE as a process of environmental management is imperative, being seen as an instrument or tool for raising awareness among the population. As a management instrument, EE seems to assume a technical and disciplining character, and as a tool to raise awareness among the population, it reflects the utilitarian model of society, favorable to the principles of a conservative EE. The association test showed that the studied urban green park was represented mainly by the words “degradation” and “natural,” showing dichotomous and biologizing trends. The results indicate the need to adopt activities that allow transposing the experiences presented by the students. It will contribute to the construction of a more critical, emancipatory EE that is really focused on the complex environmental agenda.

**Keywords:** Environmental management; Urban green parks; Environmental perception; Urban planning.

### **Resumo**

A presente pesquisa analisou a percepção de 42 estudantes do Ensino Superior sobre as atividades de educação ambiental (EA) em gestão ambiental e explorou as concepções espontâneas a respeito de um parque verde urbano. Os dados foram obtidos em 2016 através de um questionário baseado na metodologia do Teste de Associação Livre de Palavras e analisado pelo Discurso do Sujeito Coletivo. Na concepção dos estudantes pesquisados é imperativa a impor-

tância da EA no processo de gestão ambiental, sendo vista como um instrumento de gestão ou uma ferramenta para sensibilização da população. Enquanto instrumento de gestão, a EA parece assumir um caráter tecnicista e disciplinador, e como ferramenta de sensibilização da população reflete o modelo de sociedade utilitarista, favorável aos princípios de uma EA conservadora. O teste de associação mostrou que o parque verde urbano em questão esteve representado principalmente pelas palavras “degradação” e “natural”, revelando tendências dicotômicas e biologizantes. Desse modo, o trabalho sugere que a adoção de atividades embasadas nessas vivências contribuirá para o processo de EA podendo, neste contexto, atribuir maior complexidade nas representações sociais envolvidas na temática ambiental.

**Palavras-chave:** Gestão ambiental; Parques verdes urbanos; Percepção ambiental; Planejamento urbano.

### Resumen

La presente investigación analizó la percepción de 42 estudiantes de educación superior sobre las actividades de educación ambiental (EA) en la gestión ambiental y explora concepciones espontáneas sobre un parque verde urbano. Los datos fueron obtenidos en 2016 a través de un cuestionario basado en la metodología Test de Asociación de Palabras Libres y analizados por el Discurso del Sujeto Colectivo. En la concepción de los estudiantes encuestados, la importancia de la EA en el proceso de gestión ambiental es imperativa, siendo vista como un instrumento de gestión o una herramienta de sensibilización de la población. Como herramienta de gestión, la EA parece asumir un carácter técnico y disciplinador, y como herramienta de sensibilización de la población, refleja el modelo utilitario de sociedad, favorable a los principios de una EA conservadora. La prueba de asociación mostró que el parque verde urbano en cuestión estaba representado principalmente por las palabras “degradación” y “natural”, revelando tendencias dicotómicas y biologizantes. Así, el trabajo sugiere que la adopción de actividades a partir de esas experiencias contribuirá al proceso de EA y, en ese contexto, podrá atribuir mayor complejidad a las representaciones sociales involucradas en la temática ambiental.

**Palabras clave:** Gestión ambiental; Parques verdes urbanos; Percepção ambiental; Urbanismo.

## 1. Introduction

Higher Education Institutions (HEIs) are entities that stand out in the formation of a society capable of facing environmental challenges with the rapid increase in contemporary global environmental problems (Albani et al., 2019; Hernández Villa et al., 2019; Bardelás & Kropf, 2020). The cities disorderly expansion and the ensuing process of industrialization that marks the beginning of the 20th century led to the emergence of new problems and needs for the inhabitants of the urban environment, thus affecting the agenda of the Environmental Curriculum (EC) of academics in training. However, the study and development of this training seem lacking in theoretical identity, a situation that can make it difficult to establish plausible strategies (Hernández Villa et al., 2019) and, in a certain way, delay its agglutination in the skills and competencies of professional training.

These aspirations must be part of the Critical and Transformative Environmental Education agenda in HEIs to foster the generation of responsible professionals committed to sustainability. The formation of disciplines capable of guiding society towards more sustainable forms of production and consumption is one of the main HEI contributions (Thathong, 2010; Lozano & Young, 2012; Ruiz, 2016; Jaramillo & Naranjo, 2019). Given this complex scenario, committed work is necessary, based on praxis, which considers the various dimensions: social, political, economic, ethical, aesthetic, pedagogical, and cultural (Albani et al., 2019; Bardelás & Kropf, 2020).

In this sense, Environmental Education (EE) must act in the construction of a new understanding of reality, seeking a conscious and responsible action in the environment, based on concepts, values, and attitudes that establish an ethical and healthy relationship between society and nature. EE promotes the emancipation of social actors by providing the individual with a position within the collective through the construction of critical and reflective thinking on socio-environmental issues (Cousin, 2014; Pessoa & Braga, 2010; Bardelás & Kropf, 2020). The environmental actions carried out within HEIs are still considered punctual and not very expressive, with a conservative naturalistic view and the belief in technicality being predominant (Souza, 2016).

According to Brazilian Law No. 9,795, of April 27, 1999 (Brasil, 1999):

Art. 1st - Environmental education is understood to mean the processes through which the individual and the community build social values, knowledge, skills, attitudes and competences aimed at conserving the environment, a good for common use by the people, essential for healthy quality of life and its sustainability.

Art. 2nd - Environmental education is an essential and permanent component of national education, and must be present, in an articulated way, at all levels and modalities of the educational process, in a formal and non-formal character.

Considering higher education, the legislation observes that the theme of Environmental Education must be referenced in the Pedagogical Projects of Courses (PPC), not necessarily as a discipline, but, in addition, that spaces for debate and practical activities are provided, engaging and interdisciplinary way, not only staying in the theoretical instance, but applying knowledge in the real field, verifying and perfecting their actions and analyzing their results. (Silva & Haetinger, 2012)

From the application of Environmental Education in Higher Education, along the lines of the National Environmental Education Policy (PNEA, acronym in Portuguese), it is possible to frame the human actions in relation to the environment, allowing awareness and sensitization, as a transformative essence and indispensable for sustainable development (Alencar & Barbosa, 2018).

It is worth mentioning that school is considered the formal space of education guaranteed by law and organized according to a national standard. The definition of what constitutes a non-formal teaching space is quite complex. However, it has been used by professors and researchers in the field of science communication to specify places that, in general, are not the school environment, but that are capable of carrying out educational activities (Jacobucci et al., 2009). Therefore, visits to squares, green areas, ecological parks, woodlands, among others, when pedagogically appropriate, can be considered non-formal teaching spaces that provide education and the development of science and culture (Bezerra & Nascimento, 2020).

The Arnulpho Fioravante Municipal Park is one of the few urban green areas remains in the city of Dourados, MS, Brazil, with 72 ha, housing springs and wetlands of the Paragem microbasin. It is an impacted environment, which suffers significant human pressures and, therefore, has not been fulfilling its social function due to the lack of planning and environmental management (Marques et al., 2018). It is not considered a conservation unit, but its environmental importance, attributed by the managing body or different government bodies, is significantly higher than other existing green areas in the municipality, and its privileged location, opposite the city's shopping mall and the bus station, draws the attention of various segments of society, making it well known (Lunas & Ribas, 2013).

It was designed and built in the 1970s and has rest areas, bridges, trails, and natural ecosystem preservation areas. The park was abandoned with the passage of time and the lack of infrastructure maintenance, and what was designed to contribute to the city's development began to accelerate the process of environmental degradation and signal the emergence of new social problems. Park revitalization projects, based on socio-environmental policies of municipal management, are currently paralyzed and have been lost over the years amid the institutional changes experienced by its managing body (Lunas & Ribas, 2013).

In this context, the present study sought to analyze the environmental perception of higher education students from the School of Biological and Environmental Sciences of the Federal University of Grande Dourados (UFGD) in the environmental area on concepts of Environmental Education and its association with the Arnulpho Fioravante Municipal Park in an attempt to capture key concepts, interests, values, emotions, and expectations. The results will serve as a basis for the discussion of activities that influence the construction of a more comprehensive view of the uses and functions of urban parks, in addition to contributing to the strengthening of citizenship and critical thinking. The acquired information will be essential unifying elements to promote discussions on environmental education and its relationship with the urban space for students in training. These discussions may bring to light the need to incorporate more effective actions of Critical Environmental Education in the skills and competencies of students in the environmental area.

In this context, this study is guided by the following hypotheses: i) environmental education is perceived by students as a tool in public and private planning and management of fundamental importance for the formation of skills and competencies in the environmental area; ii) students perceive the potential of urban green areas or parks for the development of EE activities because it is a place with dichotomous characteristics, marked by natural areas with significant human impacts.

## 2. Methodology

This research had the participation of 42 higher education students from UFGD. The activities were carried out in the 2016 school year in the subjects of “environmental perception” and “environmental quality indicators”. This is a qualitative, exploratory-descriptive, and experimental study that investigates the need to insert Environmental Education activities among higher education students. They were informed about the objectives and benefits of the research before the application of the questionnaires by signing a Free and Informed Consent Form.

The students answered two questionnaires: one about the perception of the importance of EE activities in environmental management, with three questions: (1) Do you consider that Environmental Education is an important tool in the Environmental Management process? Why? (2) Describe what the appropriate place should look like for the development of an Environmental Education activity. (3) Present two places in the city of Dourados where Environmental Education activities can be developed. The other questionnaire addressed the students’ spontaneous conceptions about the Arnulpho Fioravante Park, in which the following inducing expression was used: “Arnulpho Fioravante Park is...”

Open questions were also analyzed using the Free Word Association Test (FWAT) and Collective Subject Discourse (CSD). FWAT was originally developed in clinical practice and is currently used in the field of social psychology in research on social representations (Nóbrega & Coutinho, 2003). In this test, the student must write six words that are related to the inducing expression mentioned above. Then, the student must order the importance of the six words, with number 1 being the most important and number 6 being the least important. Subsequently, only the word selected as the most important must be justified. Word clouds were used as an approach for the visual representation of the FWAT word set. In this representation, each word has its size governed by the relevance attributed by the simple count of occurrences. For example, a word mentioned 30 times will proportionally be twice the size of a word mentioned 15 times. The weighted average of the words in their respective positions of importance was used to construct the word cloud. The weights 10, 5, 4, 3, 2, and 1 were assigned for words in 1st, 2nd, 3rd, 4th, 5th, and 6th position, respectively.

The justification of the word was treated according to the Collective Subject Discourse – CSD (Lefèvre & Lefèvre, 2005). The CSD technique was used precisely because it considers the discursivity, seeking to preserve it at all times of the research, from the elaboration of the questions, through the collection and processing of the data, until culminating with the presentation of results.

## 3. Results and discussion

### 3.1 Representations of environmental education

The evaluation of the representations of EE showed a similarity in the response of the students when emphasizing its importance in the process of environmental management, being divided into two central ideas: EE is perceived as an “instrument of Environmental Management” and as a “tool for the population awareness.” These ideas assume an important role, as they point to a technicist and disciplinarian direction of the role of EE by students. According to Souza and Araújo (2014), professionals need to understand that environmental issues often involve political and economic decisions and strategies with direct impacts on the physical environment and, mainly, on society. The authors argue that it is not possible to stick only to the

solution of specific problems through technical solutions.

The discourses that defined EE as an “instrument of Environmental Management” were mainly represented by the importance of EE as a curricular subject in the skills and competencies of the students. According to Sales et al. (2007), knowledge about the thought content of individuals who make up a given society is related to its existence and expresses the dynamics that this society experiences. Spink (1993) reinforces that the individual is not just a product of social determinations nor an independent producer because social representations are always contextualized constructions, results of the conditions that arise and circulate. Thus, EE is based on the relationship of these students with the academic environment and their professional training. These aspects can be observed in the discourses:

[...] it makes no sense for a person to study Environmental Management and not learn anything about EE [...] one complements the other [...] it is the master tool of the course [...] it will maintain the work of Environmental Management [...] through EE, one has the basic knowledge of caring for the environment in which we live [...] it sensitizes students to have a different view of the Environmental Management process [...] to have an idea of the problems that an activity that I perform in the environment can cause [...] the most informed student with a more accurate and critical view of the subject can perform a more attentive and effective role or work [...] we can reformulate a new management with knowledge focused on environmental practices [...] knowing the basis of Environmental Education allows developing Environmental Management projects to preserve the environment [...] to have a better adaptation when performing some activity [...] to learn how to work in natural environments in the most correct way [...] (Excerpts from the academics' discourses).

However, these discourses do not reveal an approach that considers the social aspects involved in the environmental problem faced by management projects. Souza and Araújo (2014) carried out an analysis of courses linked to the environmental theme at universities in Rio de Janeiro, seeking to outline the profile of trained professionals. The authors observed that the courses have a naturalistic and anthropocentric perception of the environment, focused on technical solutions without criticism, employing a market-oriented education. Higher education does not fully incorporate the environmental issue, presenting a fragmented and utilitarian perception, disregarding the human being and his/her social relationships. It is possible that the surveyed students' perception of EE is also being shaped by labor market trends and generically directed towards mitigating negative impacts and preserving natural resources.

The other central idea of EE pointed out by the students, “a tool to raise awareness among the population,” was represented through the transforming power that it permeates in didactic discourses and common sense. It was also supported by the concept that EE promotes the strengthening of critical thinking, even if superficial, and creates a culture of care for the environment in favor of society. According to Souza and Araújo (2014), the ideas of nature in favor of the human being are part of the utilitarian, consumerist, and technicist model of society, which seeks economic growth as a solution to issues and ignores those of a socio-environmental nature. These representations are implicitly imbricated in the following discourses:

[...] Environmental Education, I believe, is the key to a sustainable world [...] this instrument allows making society aware of current environmental problems [...] for a better way of seeing and acting on the environment [...] the lack of knowledge and awareness contribute a lot to the environment degradation [...] it brings people a broader look at environmental issues [...] Many people see the environment like a tree, a river, and not the environment itself [...] it helps in the way of seeing [...] and interpreting the environment [...] for people to be aware of how important it is to protect and preserve [...] it raises awareness in individuals regarding environmental issues [...] it seeks to work on people's environmental perception to enable changes in attitudes regarding the preservation and conservation of the environment [...] it creates a culture of preservation [...] based on Environmental Education that we understand the importance of the environment in which we live [...] that raises awareness and mobilizes people for decision-making [...] leading society to change its values and behavior [...] even managing to create new habits [...] the individual learns to deal responsibly with the environment [...] it helps people understand what the environment is, how and why to conserve it [...] it facilitates the manager's work with the population [...] (Excerpts from the academics' discourses).

These discourses point to the need to mobilize social actors for the socio-environmental transformation based on the construction of knowledge obtained by EE. A conservative view is also observed in these discourses despite the perceived intentions, not leading to a deeper reflection on the processes that govern the environmental issue. This lack of criticality can lead to the collectivization of the blame for the environmental crisis, disregarding the social relations contained in this process and the different sectors involved (Rodrigues & Loureiro, 2014).

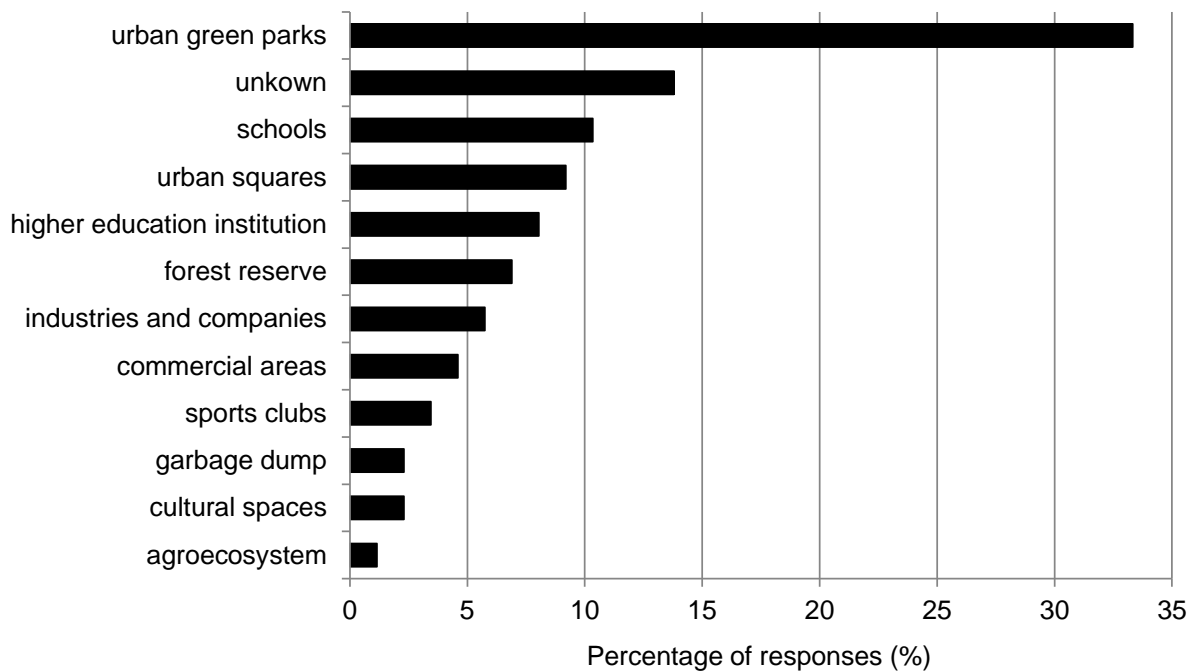
Few discourses show the position of the interviewees as a subject, whether in the first, third, or indefinite person, in which the individual can place himself/herself as a procedural element for EE actions, being a member of society or a manager directly linked to the planning of environmental projects. These subjects can be observed in the discourses:

[...] we must all know how to properly deal with the environment [...] we often do not evaluate the environment in which we live as a whole [...] we must have an Environmental Education [...] It gives us another view of the environment [...] We have to have an idea of the problems that an activity that I perform in the environment causes [...] with this, we can pay more attention [...] we can reformulate new management [...] (Excerpts from the academics' discourses).

The absence of a subject strengthening the discourses may be linked, as seen by Sampaio and Wortmann (2014), to the continuous character of the formation of identity, to the recent social construction about EE, or the difficulty in assuming an identity within the environmental theme since they interact directly with the way of life and are not configured only as a professional identity. In short, students perceive EE as a tool or formal instrumentation of importance in the formation of their skills and competencies. Moreover, the discourses were anchored in a naturalistic and anthropocentric/ethnocentric representation, most of the time with little socio-environmental representation. According to Tuan (2012), human beings, individually or in groups, tend to perceive the world as the center, and both egocentrism and ethnocentrism seem to be universal human traits, although their intensities vary greatly between individuals and social groups.

Regarding the questioning made to the students about possible places where EE activities can be developed, they mentioned both degraded and preserved places. As recommended, urban green parks were the most representative (Figure 1). It is a fact that these data may be overestimated, as a result of the students developing an EE activity within an urban green park. However, this also reinforces the necessity for these interviewed students to work with EE in different formal or informal spaces and then incorporate it into their professional activities. Silva and Haetinger (2012) suggest expanding the initiative to disseminate successful practices, methodologies, projects, successful experiences, which had an effect and certainly made a difference in teaching-learning, enabling the application of environmental knowledge in all phases of the professionalizing itinerary.

**Figure 1.** Classification of places described by students for EE practices.



Source: Authors.

### 3.2 Perception about the Arnulpho Fioravante Park

The Free Word Association Test resulting from the inducing expression “Arnulpho Fioravante Park is...” produced a dictionary with 93 words, many of which were considered synonymous and semantically close. After being grouped and reduced, they generated a dictionary of 42 words shown in Figure 2.

**Figure 2.** Word cloud about the inducing expression “Arnulpho Fioravante Park is...”



Source: Authors.

The most representative words also showed dichotomy among themselves, such as “deforested and degraded” as opposed to “nature.” According to Tuan (2012), the environment can lend itself to this dualistic view, reinforcing a trend, serving as a clearly visible index of polarity. The dichotomized environment and the presence of dualistic attitudes are already recurring themes in the literature on environmental perception. In the students’ perception, the environment used for the EE activity presents the element of degradation at the same time that elements of nature are recognized.

The words “polluted, anthropized, leisure, dirty, big, lake, peace, beautiful, abandoned, biodiversity, life, and careless” occurred with less representation, but maintains the dualistic view. These words reinforce the perception of degradation in the environment but highlight positive and expected elements for a green park. The words “deforested and degraded” were justified by human actions, attributing responsibility to the negligence of the public administration and the lack of awareness of the population. The students’ discourses were as follows:

[...] it has little vegetation [...] few green areas and those that exist are poorly cared for [...] there are many parts without trees [...] lack of permanent protection areas near the rivers [...] lack of shade [...] it should have more vegetation and more riparian forest [...] the riparian forest protects the stream [...] the stream is in terrible condition and poorly maintained/protected [...] a great lack of plants of shade, of animals [...] channeling, trampling, waste [...] it is affected by organic matter and human intervention [...] an environment greatly modified by human action [...] suffering from human actions [...] and the consequent negative changes in the environment [...] it has numerous impacts caused by humans [...] harming its biodiversity [...] Inadequate [...] poorly maintained [...] polluted due to the lack of preservation [...] It does not have an adequate treatment [...] It does not have care [...] it does not have adequate maintenance [...] lack of care from the city hall [...] it should be better cared for/maintained and managed because it is public [...]Lack of awareness of people and the competent body for the importance of the park [...]

The justifications for the word “nature” were mainly guided by biologizing and positivist aspects, such as:

[...] The presence of the lake [...] gives life to the park [...] it has a diversity of fauna and flora [...] presence of vegetation, native and spontaneous species [...] there are big, well-flowered trees and with large extensions in all their points [...] The green brings natural resources, nature [...] balance of the ecosystem [...] more pleasant climate [...] the wind blows [...] It is a natural park, apparently ecological [...]

Although many negative points are highlighted in relation to the park’s state of conservation, especially regarding the impacts caused by human action, poor planning, and lack of population awareness, the students also believe in the park’s potential, as it is seen as an area of leisure, contemplation of nature, or environmental protection.

The main reflection of the negative impacts suffered by the park is the loss of diversity. However, there is still a high demand regarding the abundance and diversity of living beings despite the students have observed the presence of a variety of animals and plants. Given that the park is considered a green area, the presence of vegetation is very demanding, especially the larger trees, which produce shade and favor the microclimate of the region. The aquatic environment was also a factor of great importance for the students. Springs, brooks, streams, and the lake bring life and make up the park landscape.

The blame for the abandonment and lack of care for the park are directed to the public administration in most discourses. Students demonstrate a more critical approach to social aspects by directing this demand to specific sectors of society and pointing out political influences on environmental issues, bringing to light the historical trend of the EE conception, pointed out by Rodrigues and Loureiro (2014) as a critical aspect that has repercussions on transformative practices. However, these discourses also bring to light a recurring posture in environmental perception, that of the observing or judging subject who never poses as part of the problem. And why do not they put themselves as part of the problem? Because training, from basic education onwards, does not focus on social learning, learning that has dialogue and interaction as its premises, which encourages the analysis of nature interconnected with social practices, which recreates and reinterprets information, concepts, and



meanings (Jacobi, 2003), which creates values and attitudes aimed at local and, consequently, global balance, through human-nature integration, which develops new ethics for humanity, expanding the awareness of the student (Guimarães, 1995).

When it comes to impacts directly related to human actions, it is not clear who would be the author(s) of these actions and the subject does not place himself/herself in any of the presented situations. Following the rational trend characteristic of a conservative EE, the interest lies in transmitting knowledge that promotes disciplinary proposals to mitigate these impacts. This is possibly one of the main elements to be worked on for the reform of the Environmental Curriculum of students to actually promote a Critical and Transforming Environmental Education to place the observing agents as part of the problem and able to give objective solutions to the problem.

Parks or urban green areas stand out in the promotion of benefits for the local population and their surroundings, acting in the maintenance of thermal comfort, the capture of suspended particles, attenuation of visual and acoustic pollution, the recovery and maintenance of natural resources such as water bodies and native fauna and flora, in addition to the aesthetic enhancement of the region, creation of tourist attractions, and strengthening of citizenship (Loboda & De Angelis, 2005). The main scope of urban parks is to meet the requirements for leisure and social areas and mitigate the environmental problems generated by urban sprawl. The park has enormous natural potential, even if secondary, even with so many objections to its current state of conservation. Cozy, beautiful, and nature were some associations made by the students when visiting the park. According to Torres (2010), the bond between human beings and nature has been weakening as scientific and technological advances have allowed greater intervention in the environment, changing our old relationships with nature. Green parks in the middle of cities are refuges for the busy life of human beings, being essential for their balance and well-being, putting them in contact with nature.

Therefore, there is no neutrality in discourses and actions, which are covered or masked by political ideologies. Thus, in the current political scenario, more than ever, it is important to strengthen, fight, and prioritize Environmental Education as an agenda for Social Movements since the possibilities of working together with the State go through a process of transformation, in which the scenario is unfavorable for the environmental issue from a critical and transformative perspective (Albani et al., 2019).

#### **4. Final Considerations**

The importance of EE in the environmental management process is imperative in the conception of the surveyed students, as it is seen as a management instrument or a tool for raising awareness among the population. As a management tool, EE seems to assume a technician and disciplinarian character, with a superficial behavior in relation to the environment and technical solutions to environmental problems. EE was related to formal education, especially regarding higher education, and it is from this context, in the relationship with the academic environment, that students positioned themselves in the social sphere. The academics' view of EE is based on naturalistic and ethnocentric aspects, in which nature is in favor of human needs and the training of the manager turns to technical solutions lacking criticality and is shaped from the trends of the professional market.

As a tool to raise awareness among the population, the students relied on common phrases about the transforming power of EE, which, consequently, would not bring empowerment and autonomy to change society's consciousness. Caring for the environment reflected the utilitarian society model, favorable to the principles of a conservative EE.

The association test showed that the Arnulpho Fioravante Park was represented mainly by the words "degradation" and "natural," revealing dichotomous and biologizing trends, common to human perception. The study suggests the need to adopt activities that allow transposing the experiences presented by the students. It will contribute to the construction of a more

critical, emancipatory EE that is really focused on the complex environmental agenda.

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