



ENVIRONMENTAL EDUCATION PROCESSES IN VULNERABLE COMMUNITIES IN THE EASTERN NEIVA.

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Abstract.

This project aimed to foster love, respect, and responsibility for the environment among a group of children and young people living near the lower basin of the Las Ceibas River, east of the urban area of Neiva, Huila. Through an environmental education process with a holistic and interdisciplinary approach, didactic strategies based on popular education were designed to raise community awareness about their natural environment and strengthen values such as care and the common good. Activities such as sensory perception, crafts, dialogues and reflections, and the integration of knowledge from various disciplines facilitated the understanding of environmental problems affecting the community. The results demonstrated greater environmental awareness and a more positive relationship among the participants with their territory.

Keywords: Environmental education, Interdisciplinary, Popular education, Territory.

Resumen.

En esta experiencia se buscó fomentar el amor, el respeto y la responsabilidad hacia el ambiente en un grupo de niños, niñas y jóvenes que residen cerca de la cuenca baja del río Las Ceibas, al oriente urbano del municipio de Neiva-Huila. A través de un proceso de educación ambiental con un enfoque holístico e interdisciplinar, se diseñaron estrategias didácticas basadas en la educación popular para sensibilizar a la comunidad acerca de su entorno natural y fortalecer valores como el cuidado y el bien común. Mediante actividades como percepción sensorial, manualidades, diálogos y reflexiones e integración de saberes de diversas disciplinas, facilitó la comprensión de problemáticas ambientales que afectan a la comunidad. Los resultados evidenciaron una mayor conciencia ambiental y una relación más positiva de los participantes con su territorio.

Palabras Clave: Educación ambiental, Interdisciplinar, Educación popular, Territorio.

I. INTRODUCCIÓN.

Currently, Environmental Education (EE) is an effective means to raise human awareness about the need to preserve the environment, thereby achieving a better

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quality of life for present and future generations (Zabala & García, 2008). The Treaty on Environmental Education for Sustainable Societies and Global Responsibility emphasizes that this education requires individual and collective accountability at local, national, and international levels (Global Forum-Treaty on Environmental Education, 1992).

Consequently, Environmental Education (EE) does not only involve studying the factors that determine environmental degradation and its impact on human beings; rather, it encompasses a broader, determined, and conceptualized focus (Zabala & García, 2008), which must include social, political, economic, ethical, and cultural dimensions (García & Rodríguez, 2005).

In this sense, EE requires a set of knowledge, values, and skills from various fields of knowledges (Sauvé, 2003), it is a dynamic discipline that constantly evolves to respond to the challenges of a world where rapid technological, economic, and social advances demand continuous adaptation. Therefore, it is essential to address the environmental problems caused by these changes, disseminate their causes and consequences, and thus foster a transformation in society through changes in people's values, attitudes, and behaviors (Ibáñez & Amador, 2017).

Furthermore, EE and legislation must be integrated to create a more informed, responsible, and committed society dedicated to environmental protection (Zabala & García, 2008), as is the case with the Colombian Constitution, which guarantees the right to a healthy environment and establishes the obligation of authorities to protect it (Constitutional Court of Colombia, 1991). Similarly, Resolution 1508 of 2010 promotes the rational and efficient use of water at all educational levels, as well as in society in general, and prioritizes the protection of zones and/or areas of influence of aquifer springs by environmental entities, which conduct studies for recovery, protection, and conservation (Hernández et al., 2025).

Meanwhile, the National Environmental Education Policy establishes EE as a dynamic and participatory process aimed at forming critical and reflective individuals, capable of understanding the environmental problems of their contexts (Conza et al., 2025) and proposing solutions (which could be technical, political, pedagogical, or otherwise) aimed at the socio-environmental transformation of their reality, towards the purpose of building environmentally sustainable and socially just societies (Ramos & Escobar, 2025; Salazar, 2024).

However, Las Ceibas River presents high levels of pollution due to domestic and industrial wastewater discharges, which has resulted in the deterioration of the water quality of this vital tributary for the inhabitants of Neiva, as it is the source supplying the aqueduct of the city (Marinez-Nieva, 2021).

Due to the above, Gutiérrez (2013) affirms that EE, as a continuous learning process, is fundamental for students to receive an education that enables them to address the environmental challenges of their region, such as their geographical proximity to the Las Ceibas River, in addition to fostering an understanding of the territory's cultural context. This involves considering the diverse human and non-human actors, such as other species, as well as the different ecological and cultural environments where EE takes place (Cruz-Herrera et al., 2022; Noguera, 2004).

Additionally, working on EE from an early age promotes the development of positive behaviors and/or attitudes towards the environment, creating a habit that participants transfer to their homes, raising awareness among their families, and contributing to mitigating the problem (Souto-Seijo et al., 2017). Furthermore, it is important to break away from dogmatic approaches in education, often characterized by rigid structures and a focus on memorization. Instead of simply imparting knowledge, attention should be centered on fostering a liberated thought process, allowing students to interact with their environment in an exploratory and open-minded way, linking dynamic learning with lifelong learning (Ibáñez et al., 2012).

From this perspective, traditional teaching methods can stifle creativity and hinder the development of critical thinking skills, whereas EE, on the contrary, is a transformative experience with the potential to liberate the mind and motivate individuals to question, explore, and connect with the world around them in a more meaningful and responsible way. Likewise, teachers, as

facilitators of this liberating process, re-examine their practices and encourage students to think beyond prescribed rules.

Similarly, Acedo et al. (2021) assert that active learning as a teaching method engages students to perform from a collaborative approach, promote skills, and develop critical thinking, since an educational context centered on children's interests favors the design of real experiences, giving them their own meaning in which they propose solutions to conflicts. Moreover, a valuable experience must be proposed, one that awakens children's interest, resulting in natural and unforced work, linking past experiences with current and future ones (Ruíz, 2013).

Sauvé (2010) proposes reconstructing bonds with nature through affective, sensory, experiential, cognitive, and creative approaches, allowing the subject to know, explore, and understand the biodiversity of the environment and the phenomena involved, so that they come to know their own living environment and develop a sense of belonging towards it.

In accordance with the above, the experience was developed with children and young people from a vulnerable community in the eastern area of the city of Neiva-Huila, with the purpose of contributing to improve their relationship with the territory, implementing popular education.

In this sense, it is necessary to clarify that the territory is what the community creates according to the space they inhabit or their ancestors inhabited, framed within a consciousness of belonging, which allows for unity, that is, the appropriation and relationship that humans and society establish within a terrestrial space. Therefore, it is not only the space, but the relationships inscribed within a field of power (Acero & Cabeza-Morales, 2008; Hadad & Gómez, 2007). Hence, it aids in the interpretation and understanding of social relationships linked to the spatial dimension, as it contains the social practices and symbolic meanings that human beings develop in society in their intimate relationship with nature (Llanos-Hernández, 2010).

Therefore, popular education considers that there is no educational and pedagogical action without context, because territories mean that the educational exercise is always contextualized. By including the different political, social, cultural, and economic elements, it recognizes education as a political-pedagogical exercise (Mejía,

2013), for as Freire (1993) states: "Speaking of popular education implies the necessity, the taste, of raising the fight for effective education, and moreover, for a type of education that pays attention to a specific social class" (p. 40).

Thus, EE has an ethical-political character, which will allow building forms of solidarity and responsibility, opening the doors to build problematizing learning from the senses, through the question: education for what purpose? (Mejía, 2013).

II. METHODOLOGY.

The participants were children between 5 and 14 years old. The sessions were held on Saturdays in a park located in commune 10, in the eastern area of Neiva. Most families are in socioeconomic stratum 1, so the work activities of both parents are informal and non-professional. A minority belongs to families that are victims of the armed conflict (displaced persons) and ethnic or indigenous groups. Children, for the most part, are in primary education and tend to work in groups to share and listen to others' opinions.

Given this social and economic context experienced by each child and young person in their home, pedagogical and didactic strategies based on popular education were designed, taking into account factors such as: geographical context, ages, available resources, and commemorative days. The work sessions, held on Saturdays, were as follows:

- Session 1: Local Explorers: Discovering the Secrets of Our Surroundings.
- Session 2: Celebrating Women: A Day to Honor Our Achievements.
- Session 3: Whispers of the River: A Journey along the Banks of Las Ceibas.
- Session 4: Water for All: We Sing, We Plant, and We Learn!
- Session 5: Planting Dreams in a Cardboard Cup.
- Session 6: Dialogue, Respect, and Cooperation.
- Session 7: Tour of the SENDICAM Trail.

III. RESULTS AND DISCUSSION.

Local Explorers: Discovering the Secrets of Our Surroundings.

A perception activity (visualization and listening) of the environment was conducted (see figure 1), considering the Mayer and Salovey model, which establishes that perception and emotions facilitate thought and emotional and intellectual growth (Marcos & Diéz, 2019). According to the writer Victor Hugo, it is profoundly sad to think that nature speaks while humankind does not listen to it; the need to listen to the environment then arises, becoming an important goal for the teacher to raise awareness, develop, and support children in adopting and developing urgent habits and actions, generating knowledge and innovation to preserve it (Velezvia, 2020).

Figure 1.
Environment perception activity.



Note: personal photograph

They were invited to reflect on their environment, and it was evident that children perceived a natural environment with flora and fauna, reflected in drawings and comments from the participants. They are aware that their territory harbors

a great number of species (favored by geographical, water, and climatic conditions), despite this, very few illustrated the river; a minority have not had the experience of going to the river (they do not know it) and a majority have relegated it to the background, as if it were something unimportant.

- P9: "I don't know the river, my parents don't take me or my brother."
- P17: "Yes, we sometimes go to the river, I just forgot to draw that."

On the other hand, it was expected that urban components would also be illustrated, demonstrating the notable urban expansion arising from invasions and settlements, which, according to Pulido-Osorio et al. (2023), this community sector borders areas restricted for housing settlement due to micro-watersheds and forests, which must be duly protected, but due to exponential growth have been invaded (see figure 2). From this situation, as teachers in training, we do not propose to expose and limit the areas where they already coexist as a community, so the stated purpose will emphasize improving that relationship with their environment (territory).

Finally, the participants perceived motor vehicles, denoting noise pollution; the dependence on automobile use has generated significant effects on the city-environment relationship, and clearly its most significant consequence is air pollution from greenhouse gas emissions (Alfie & Salinas, 2017). Noise is one of the main elements of pollution in cities, where vehicles, with their engines and the friction of tires on the road, are the main contributors to total noise. It is noteworthy that even at a young age, children are aware of this (Alfie & Salinas, 2017).

Figure 2.

Perception of their environment.



Note. *Personal photograph. A) Meeting place, note the tree and the tires in the surrounding area.*

Celebrating Women: A Day to Honor Our Achievements.

It was explained that throughout history, women have been conditioned and limited in social, labor, political, and economic roles, where, through constant struggle and social movements, access to dignified rights was achieved for them. In this space, empowered and outstanding women in science and their contributions were mentioned to consolidate in the girls the awareness that they are fundamental to society; in Colombia, it is evident that education does not properly teach gender equity, so improvisation, beliefs, and sexist and macho prejudices by educators hinder progress in female empowerment (Espinosa, 2024).

The hands-on activity involved the prior collection of cardboard cups, plastic bottles, and organic elements (branches, stones, and sand) to construct a flower as a gift for an important woman in their lives. Why a flower? Children commonly associate beauty with flowers (granted by their color pattern, delicacy, and symmetry); in the words of one child, the flower is:

- P5: "I think the flower is the most precious thing of a plant."

Likewise, giving them is a cultural act that traditionally occurs, allowing the expression of wishes and emotions. According to some authors, flowers are very sensitive, which makes it possible for them to have a soul (Casteleiro, 2020; Mancuso & Viola, 2015), however, why pick them (kill them)? What appropriation does the community acquire in their gardens if they are invited to do so or allowed to continue doing so? This is referred to as botanical imperception, originally defined by Wandersee and Schussler (2001) as "plant blindness": the inability to recognize and perceive the importance of plants, their aesthetic and biological aspects, and the idea that plants are beings subordinate to animals, thus not deserving significant attention.

This is mainly due to the lack of content diversity, absence of practices, and decontextualized teaching (Salatino & Buckeridge, 2016). On the contrary, botanical imperception, according to Figueiredo et al. (2012), not only fosters critical ecological education but also EE, which drives feelings and emotions, leading them to acquire a new perception. On the other hand, it becomes essential to avoid consumerism, because according to the ideals of Casteleiro (2020) "floristry has become a capitalist product" (p. 7). Therefore, making a flower with recycled materials is a pertinent option.

A dialogue was held about solid waste, which is considered useless, undesirable, or disposable by those who discard it (Curcio et al., 2015), so giving them a second use and making flowers allowed participants to understand that these

materials have a second life and that through art, colorful details are obtained (see figure 3).

Figure 3.

Children making flowers for the commemoration of International Women's Day.



General note. *Toma fotográfica propia.*

Whispers of the River: A Journey along the Banks of Las Ceibas.

A part of the book “¿De dónde va a salir el agua?” (“Where Will the Water Come From?”) was read. It mentions the adventure of some children with social, political, and economic conditions similar to those of the community. The characters, who are children of the river, its fertility, its fauna and flora, were born from freedom and the extreme violence of their land. In this way, they share with various wild animals that, unfortunately, are disappearing due to pollution, deforestation, and hunting, in the rush for destruction to obtain wealth from our territory (Ramírez-Ocampo, 2022).

The story was an important and strategic resource that brought participants closer to natural knowledge, since analyzing the plot of a story encourages participants to create a connection between their own experiences and those of the characters (Acuña et al., 2020). By identifying with the story, participants recognize that they are not the only ones experiencing these feelings, situations, and problems, so they should be guided to learn strategies and skills that enable them to be capable and independent when resolving their conflicts (Acuña et al., 2020).

A walk to Las Ceibas River was conducted. There, an environment perception exercise was conducted, in which participants walked barefoot into the river, listened to the birds singing, felt the river current and the wind, and observed species of arthropods, amphibians, and fish. With this activity,

the children observed that there is life in these natural spaces and identified that the place is a fragile ecosystem. At the same time, illegal activities by some individuals not involved in the activity were witnessed, such as extracting sand with heavy vehicles and washing vehicles, which generated astonishment in the participants. They were therefore invited not to engage in this type of action and to prevent them from occurring in the future, by dialoguing and reporting from their homes.

After the visit, the students made drawings based on what they observed and wrote reflections inviting others not to pollute, as shown in figure 4.

Figure 4.

Children's drawings after their visit to the Las Ceibas River.



Note. *personal photograph.*

Among the reflections of the participants after the experience of visiting the Las Ceibas River were:

- P5: “Not throwing garbage, also not washing motorcycles in the river, as it pollutes the river. I would start a campaign on RCN Radio.”
- P13: “We are the ones responsible for polluting.”
- P24: “Cutting down so many trees is bad because it takes away our shade, air, and the birds’ homes.”

Analyzing the reflections, it was found that the participants’ critical process emerges, and they devise short-term strategies in their own way, such as reporting and taking on the role of journalists from a well-known media outlet. On the other hand, from their perspective, participants think that without trees the air would be polluted, a valid point considering their basic educational level and that in their attempt to explain a

problem, they understand that deforestation would lead to the absence of oxygen and, therefore, a greater amount of greenhouse gases.

Water for All: We Sing, We Plant, and We Learn!

It was shared how, despite Colombia having a great availability of water resources, climate change and waste in daily activities threaten its quality and abundance, making it crucial to remember that water is the vital resource for the survival of absolutely all living beings (Barrera, 2022). Furthermore, the importance of the paramos (high Andean wetlands) was discussed, along with their problems due to the forest fires that occurred in early 2024 in the Berlín-Santander paramo, which affected 40 hectares of frailejones (Espelitia plants) aged between 100-300 years (Múnera Zambrano, 2024). Some of the participants knew about the topic because they had seen it on the news, but most of them did not know what a frailejón was or its importance, so their impressions and feelings were of sadness.

They were then shown an animated video “Me llamo Tierra” (“My Name is Earth”), in which planet Earth and its feelings are presented, exposing environmental situations such as deforestation, drought, melting glaciers, and ecosystems expressing their distress. In this way, participants learned about and were impacted by what is happening on the planet. A dialogue took place about what happened in the El Curíbano wetland, where a piece of glass started the flames that devastated hectares of forest (Diario del Huila, 2023), to which the participants stated.

- P14: “We could bring a helicopter with water.”
- P27: “Teacher, let’s bring water from the river to put out the fire there so the animals don’t die.”

The above demonstrates the reflective process that emerges from learning about global, national, and local problems. This resulted in participants being motivated to color a popularly known character, “Frailejón Ernesto Pérez”, because of his famous song (which was listened to and sung), evidencing that through colors they transmitted feelings of joy and vitality, showing that these plants are important to them, while others used opaque colors, reflecting their sadness about what happened.

Later, the plants in the surrounding gardens were watered, taking the opportunity to have direct contact with the plants, inviting them to talk to them, give them a name, and tell them what they wished for them, hearing

the following expressions:

- P22 to her plant Juan: “I hope it bears fruit to eat. I would be willing to water it, fertilize it, and take good care of it. I love it.”
- P36 to her plant Guanábana (Soursop): “I would be willing to take care of it, water it, and talk to it because it is a living being.”

Figure 5.

Song about water, taken and adapted from (Balloon and Ben, 2016).



General note. *personal photograph.*

For the children, the activity was strange, as most refer to plants as “matas” (a colloquial term for plants, sometimes implying weed or shrub), a generalized meaning adopted because they are immobile organisms, attached to the ground, without considering that “plantas” (plants) refers to all photosynthetic living beings, again revealing the botanical imperception the children have due to not having received training that sensitizes them to this kingdom so fundamental to life (Ortiz-Zea et al., 2023; Salatino & Buckeridge, 2016). Due to the above, the concept of plants was re-signified by having direct contact with their structures, contemplating them, and communicating with them.

Finally, with a guitar, the song “Canción para cuidar el agua” (“Song to Take Care of Water”) was performed. According to Tojeiro (2019), “music constitutes a communicative, artistic, intercultural, affective, and equitable element that allows transmitting educational values to children by connecting with their sensitivity at an individual and community level.” Thus, EE, from a social perspective, demands an interdisciplinary and transversal approach which is meaningful. The integration between

natural and cultural assets is analyzed from a holistic, integrative, social, critical, and pedagogical perspective.

Planting Dreams in a Cardboard Cup.

Prior to the meeting, reusable materials (cups and plastic bottles) were collected to give a second use in planting seeds. It was observed that many of the children are familiar with collecting recyclable material because their relatives engage in recycling activities for daily sustenance, as recycling is one of the most considered mitigation measures for environmental pollution (Camargo et al., 2022).

With the cardstock, the participants made their "Field Diary" (see figure 6), in which they noted what they observed day by day in the growth process of the plant they sowed. This activity was carried out with the pretext of discussing food security and its importance, considering climate change, poverty, and social inequality, as articulating it with didactic strategies in and for the community promotes healthy and sustainable eating (Ariza, 2024).

Figure 6.

Making Field Diaries and pots.



Note. *personal photographs.*

In this process, field diaries play a fundamental role, as they allowed students to record the changes they observe in their plants throughout the week, fostering the creation of questions regarding doubts that arise, which enrich their learning, since didactic materials made with resources from

the environment provide meaningful, visually appealing experiences that are easy to create and use, making the teaching and learning process more transcendent, inviting imagination, creation, and construction (Gusqui, 2021).

Dialogue, Respect, and Cooperation.

Throughout the sessions, conflicts arose among the participants. For this reason, with the aim of improving coexistence, a group theater dynamic was proposed. According to Eizaguirre (2009):

- "Theater is, among other things, an elaborate technique for analyzing reality, and more specifically, the relationship of human beings with themselves and their environment. It is also an effective communication instrument to foster 'complicities' on an intellectual level and, especially, on an emotional level" (p. 2).

The activity helped strengthen empathy, solidarity, altruism, and cooperation, values necessary to prevent and deter aggression and violence among community members (Marín-Escobar et al., 2023).

Visit to the "SENDICAM" Ecological Trail

A visit was made to the facilities of the Corporación Autónoma Regional del Alto Magdalena (Regional Autonomous Corporation of Alto Magdalena - CAM) (see figure 7), with the purpose of introducing participants to other learning spaces related to the Huila region.

Figure 7.

Community visit to the SENDICAM Trail.



Note. *personal photograph..*

As a result of this experience, it was observed that the participants were constantly attentive to the guides' talks, surprised by the great number of animal species found at the site, in shelters to care for them and later reintroduce them to their natural habitats. Faced with this situation, the participants expressed:

- P17: "I learned that having a parrot in my house as a pet is bad."
- P2: "I liked the macaws and turtles, I feel sad because they are locked up."

It is revealed, then, that the child's contact with nature requires continuity, if possible, at least one direct experience with the environment for it to be meaningful, as sometimes the teacher does not see the opportunity offered by outdoor spaces as a place for learning, fostering reflective learning (Sanz & Zuzuarregui, 2017). Experiential learning through hands-on activities with nature promotes deeper understanding, critical thinking, and environmental awareness among students.

IV. CONCLUSIONS.

Environmental education processes are essential in vulnerable communities, as they promote experiential learning and responsible action in decision-making to address territorial problems.

By applying popular education and knowledge of the territory, participants developed playful, creative, and artistic activities that fostered critical reflection and helped commit and empower them in the search for practical and effective solutions.

The work carried out with the children and young people contributed to strengthening environmental awareness in order to improve the relationship with the territory; therefore, working on EE from an early age is fundamental.

V. RECOMMENDATIONS.

For the implementation of Environmental Education (EE) processes with communities, it is essential to recognize the social, environmental, political, and cultural problems that affect them, in order to address them with alternative methodologies such as popular education.

Similarly, it is necessary to design strategies and have the necessary materials for adequate working condition with children and young people, since this experience was carried out as a volunteer activity motivated by the Tulpa environmental education research hotbed.

It is hoped that this type of experience will be replicated with different communities, supported by various academic and governmental institutions, to enable the activities to be carried out under better conditions.

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