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Environmental Education and Rural Curriculum: Guidelines from the Caguán Watershed

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ABSTRACT

This study aims to establish curriculum guidelines for environmental education (EE) in the context of the Caguán River watershed, focused on the perspectives of educators at the Santo Domingo Savio Rural Educational Institution, their teaching practices, and institutional references. A qualitative approach is adopted, based on the administration of questionnaires to teachers at different grade levels and the review of documents such as the PRAE (School Environmental Project), the environmental studies course, and lesson plans. The results revealed a fragmented curriculum that is still in its early stages of methodological development and shows limited integration with other disciplines. Convergences and gaps were identified between what the teachers stated and the reality of their pedagogical practices as reflected in the lesson plans. Nevertheless, a limited approach to problem-based learning was observed, stemming from questions related to territorial dynamics associated with the subject matter, which failed to transcend to a reflective level. Based on these elements, guidelines are proposed from a situated approach, aimed at strengthening the relationship between curriculum, context, and teaching practice, with the goal of fostering a coherent integration of environmental education (EE) into educational processes. These guidelines contribute to the curricular organization of environmental education from a contextualized perspective applicable to other educational settings. This study concludes by affirming that EE is present in schools but requires decisive actions that lead to interdisciplinarity and the mainstreaming of the environmental dimension, guided by the proposed curricular guidelines.

Keywords: Environmental Education, School Curriculum, Teaching Practices, Rural Context, Territoriality, Curriculum Guidelines.

INTRODUCTION

The global socio-environmental problems present reflect how humanity understands its relationship with the natural environment. From this perspective, (EE) is no longer viewed as an additional element to the curriculum but takes on a formative role. It influences the development of individuals capable of critically interpreting these relationships (Leff, 2004). In the school context, various guidelines have highlighted the need to incorporate environmental issues into the curriculum from the earliest grades of education through teacher training, promoting comprehensive processes (UNESCO, 2024).

In the research field, there is a consensus that education for sustainability cannot be reduced to the transmission of content, but rather requires transformations in pedagogical practices and curricular organization with emphasis on the development of critical and contextualized capacities (Corres et al., 2024; Cebrián et al., 2025). Despite this, impediments to its implementation continue, evidenced in the disconnection between various fields of knowledge, which makes it difficult to develop proposals from other perspectives (Saari et al., 2024).

The environmental dimension ends up being frequently implemented through specific tasks or isolated educational projects rather than as a cross-cutting and continue purpose. Research conducted in Latin America indicates that the School Environmental Project (PRAE) has faced stagnation in achieving its goals since its regulatory inception, preventing it from shaping the curriculum around environmental considerations (Torres Carrasco, 1998; González-Gaudiano & Meira-Cartea, 2020). These practices take on particular importance in rural areas, which have social and territorial ties to fundamental strategic ecosystems that provide a foundation for human survival. Therefore, the Caguán River watershed is a setting that requires academia to address its problems and establish new environmental paradigms that transform pedagogical practices and enable the redesign of contextualized and coherent curricula.

In this process, rural teachers must understand that they are key drivers of positive change in their communities, based on the decisions they make when designing lesson plans that incorporate EE. As proposed by (Ardoin et al., 2020; Boeve-de Pauw et al., 2022), these conceptions influence what and how to incorporate EE through teaching strategies deemed appropriate for content development. These actions allow for an understanding of what teachers think and do, which serves as the basis for establishing EE curriculum guidelines.

Considering the difficulties highlighted in studies and within the context of the watershed, this research seeks to establish the foundations for environmental education (EE) curriculum guidelines through a critical and territorialized analysis that incorporates teachers' conceptions and practices. In this sense, the purpose of the study is to ground EE curriculum guidelines in the context of the Caguán River watershed.

Environmental Education and Curriculum: Tensions for Integration

The relationship between EE and the curriculum is not usually well-articulated; rather, it is fraught with theoretical and pedagogical tensions that hinder the incorporation of socio-environmental issues into teaching and learning processes. These difficulties are not explained solely from a didactic perspective, but also by the way in which the curriculum has been constructed over time. It is divided into subject areas, focused on content poorly connected to the context, and, in many cases, guided by a logic of knowledge transmission.

In this scenario, the environmental dimension has been relegated in the curriculum to sporadic appearances in relation to its mainstreaming, as it has become entangled in an activist discourse that prevents a substantive curricular framework. This reflects a tension in how the curriculum is understood: on the one hand, from a technical perspective related to the design of lesson plans and methodological content sequences; and on the other, a critical view of the curriculum as a space where context is the field for constructing knowledge, guided by educational intentions (Pinar, 2019).

In this sense, the curriculum is not merely content without intention; on the contrary, it is preceded by political, cultural, and ideological interests that determine what knowledge and issues can be taught in school, where these scopes come into conflict with the type of subject one wishes to educate. This approach, grounded in Morin's (1999) complex thought invites us to understand the world of knowledge from a different perspective, in which disciplines engage in dialogue with one another so that reality is unified, allowing us to build bridges that connect the biological realm as participants in an ecosystem; the social, in relation to community interactions; the cultural, associated with identity and knowledge; and the environmental, centered on territory and nature.

Similarly, Sauvé (2005) reinforces this understanding by integrating social, political, and ethical dimensions, enabling us to consider EE from a critical perspective, in which the environmental aspect involves addressing why current environmental problems arise and who bears responsibility for them. These ideas interact with one another to shape citizens who are conscious of their actions and capable of influencing the socio-environmental realities of their surroundings (Stevenson et al., 2020).

In turn, the notion of environmental rationality (Leff, 2004) allows us to interpret the environmental crisis as the result of fragmented forms of knowledge that have severed the connection between human beings and nature, highlighting the need to integrate knowledge, territory, and cultural practices. Despite the research conducted by Morin, Sauvé, Leff, Stevenson, and others, practices disconnected from the curriculum continue, in relation to teaching processes that are far removed from the realities of their environment. This limits spaces for reflection and promoting rote-memorization assessment practices that are distant from situated learning, thereby impeding students' understanding that the acquisition of diverse knowledge is intended to solve everyday problems within the environment in which the student interacts (Howard-Jones et al., 2021). This situation is particularly evident in rural areas, where there is resistance to viewing education as a means of fostering a different way of understanding the dynamics of the environment in relation to human development.

Pedagogical Concepts and Practices in Environmental Education

In the school context, addressing EE involves understanding how teachers perceive the environmental dimension through their beliefs and perspectives, which are linked to pedagogical practices. These conceptions are approached from diverse perspectives that allow for a different reading of reality; thus, each teacher designs their lesson plan based on what they consider valid. It is here that the daily reality of education reveals that, regardless of having the same curriculum guidelines or syllabus, teachers construct pedagogical mediation oriented toward distinct design and implementation.

In light of the above, contemporary studies confirm that these conceptions are not uniform, as they are shaped by teachers' training and pedagogical experiences, which explains the diverse ways of understanding EE. Within this research, the participating educational actors trained in various disciplines and holding teaching roles at the preschool, elementary, and middle school levels provided valuable insights, which led to the identification of multiple interpretations of EE related to knowledge construction, resource use, and environmental protection (Gugssa & Aasetre, 2023). In light of this, Zhang et al. (2025) note that EE is most effective when different subject areas work together in relation to everyday pedagogical activities in their environment.

Another study conducted in the department of Caquetá with elementary and secondary school teachers in urban areas showed preliminary results regarding environmental regulatory knowledge and pedagogical strategies. Despite this, a willingness was observed among social actors to participate in environmental training processes (Amézquita-Galindo et al., 2025). This study aligns with other works that reflect a disjointed EE due to teachers' training limitations.

With regard to teacher training, recent research has examined teachers' conceptions of issues related to climate change, revealing basic-level interpretations of environmental issues. Nevertheless, limitations exist because of rooted cultural conceptions that interfere with the development of coherent pedagogical practices (Spiteri, 2024). This situation emphasizes the need to strengthen teacher training processes with the purpose of moving toward more complex and interdisciplinary approaches.

From this perspective, approaches focused on knowledge construction and the development of critical thinking persuade us to perceive teaching not as the transmission of content, but as a situated experience, where learning acquires meaning to the extent that it connects with the reality of the context (Ausubel, 1983; Freire, 1970).

In rural settings, this connection takes on special relevance, since it allows relating school knowledge with productive practices and the socio-environmental dynamics of the territory, generating learning experiences that are closer to students' daily lives.

In this sense, the relationship between teachers' conceptions and their pedagogical practices determines how the teacher interprets environmental education (EE), and in this way, reveals everyday realities, insofar as it is the educator who decides what is done, demonstrating that the way the teacher understands the environmental dimension is decisive in planning relevant and contextualized environmental pedagogical strategies.

Foundations for the Development of Curriculum Guidelines in Environmental Education

local territory. Developing curriculum guidelines in EE involves responding to the environmental realities of the context. This requires integrating pedagogical, institutional, and cultural approaches.

Even so, this is not enough; curriculum planning is insufficient unless it takes into account how teachers think about EE, how they conceptualize it within their discipline, and how they approach it as active members of society. In this sense, the guidelines take on significant meaning, as these orientations adapt to the various challenges of different contexts; the decisions made by educators provide that touch of coherence, which facilitates the integration of knowledge as learning opportunities.

Nevertheless, addressing the environmental dimension from a perspective of complexity means recognizing that socio-environmental dynamics need to be addressed from other disciplines and not limiting this responsibility to the natural sciences. Although a close relationship exists between them, it is a responsibility shared to the various disciplinary areas. So, it is not simply a matter of establishing an articulation with existing knowledge through the incorporation of ecological content; It goes further, due to this strategic step requires articulating ecological, social, cultural, and ethical dimensions within an interdependent and comprehensive framework (Sterling, 2011; Wals, 2022).

This curriculum, currently under development addresses territorial contextualization not only from a biological perspective but also as a place-based learning environment that fosters spaces for knowledge construction. In this manner, the territory guides educational processes, integrating local knowledge, everyday experiences, and the socio-environmental dynamics that shape the school reality (Ardoin et al., 2020).

Therefore, approaching the curriculum through the territory helps break down the barrier of decontextualized teaching practices, allowing a transition toward situated learning, where knowledge takes shape by connecting with lived reality. As Ardoin et al. (2020) note, EE requires approaches that build learning bridges with local realities, while Yeimini et al. (2025) emphasize the importance of starting from the particular as a component of the territorialization of the educational process to strengthen the coherence and relevance of the meaning of learning.

In this regard, it is necessary to adopt a school-based perspective that enables us to interpret how subject areas engage in dialogue not based on their own knowledge base, but rather on the challenges of the local community, as the starting point for the educational objectives of the school curriculum, thereby taking a leap that breaks away from traditional pedagogical approaches. Only in this way can EE be consolidated as a cross-cutting process that spans disciplines and teaching practices.

In the context of Caquetá, these principles are supported by the Public Policy on Rural Education, which emphasizes the "development of quality rural education through curricula relevant to the rural context of Caquetá" (Government of Caquetá, 2022, p. 6), which, through an ordinance, urges educational institutions to respond to this call. Nevertheless, this departmental initiative recognizes economic and socio-environmental development trends as components of the curriculum. In this way, this governmental initiative views the school and the territory as a dual component of the educational process (Government of Caquetá, 2022).

Even so, when comparing these guidelines with the reality of schools, it becomes clear that there are still gaps in the design of curricula that are relevant to the challenges at hand. Although the policy recognizes the importance of contextualization, it does not clearly define criteria or pathways to guide the integration of environmental education into teaching processes. This underscores the need to establish curriculum guidelines that guide the integration of EE into educational practice (Government of Caquetá, 2022).

In line with the above, the environmental education curriculum guidelines are organized around the context of the Caguán River watershed, which allows for their adaptation to other educational settings without compromising their educational connection to the

METHODOLOGY

The research was approached from a qualitative interpretive perspective, with the aim of establishing curriculum guidelines for EE in the context of the Caguán River watershed. This approach allowed for a coordinated examination of teachers' conceptions, their pedagogical practices, and institutional curriculum frameworks in relation to the specific dynamics of the territory (Denzin & Lincoln, 2011; Flick, 2022).

The research was conducted at the Santo Domingo Savio Rural Educational Institution, located in the municipality of San Vicente del Caguán, in the department of Caquetá (Colombia). 15 educational actors from different fields of knowledge participated, which allowed for an interdisciplinary approach to the environmental dimension.

Two strategies were used to collect the data. First, a qualitative questionnaire with open-ended and semi-structured questions was applied. Then, a literature review of the PRAE, the environmental studies course, and the corresponding lesson plans for the 2022 and 2023 school years was conducted (Bowen, 2009; Merriam & Tisdell, 2016).

The results were analyzed through categorization and coding processes in the Atlas.ti software, which facilitated the identification of relationships between the collected information. This enabled the recognition of tensions, patterns, and possibilities in the integration of environmental education into the curriculum.

In relation to the rigor of the research, the study's objective, the categories of analysis, the data sources, and the results achieved were aligned, generating a conceptual connection between each element. The contrast between the literature review and the data from the questionnaire helped to strengthen the consistency of the results, in accordance with the criteria of coherence and credibility characteristic of this type of research (Lincoln & Guba, 1985).

RESULTS

Analytical Basis for the Curricular Foundation of Environmental Education

The study's findings enable the identification of an analytical framework based on the relationship between teachers' conceptions, pedagogical practices, and institutional curriculum guidelines, thereby fostering an understanding of their significance in contributing to the curricular foundation of Environmental Education (EE). In this way, the questionnaire revealed the educational reality through their voices, linking environmental issues to conservation practices in the natural environment and approaches to the development of socio-emotional attitudes. Furthermore, it was observed that the context of the rural division and the watershed was taken into account in planning, though these were not addressed from a critical perspective.

These actions observed among teachers indicate a willingness to contribute to the PRAE, the environmental studies course, and pedagogical projects, even if these efforts do not materialize. Furthermore, educational actors point to the need to address environmental issues from other disciplines and to foster dialogue among them. However, the documented pedagogical practices revealed curriculum designs and environmental project activities aimed at developing ecological content, which limits their scope and hinders integration into the curriculum.

These educational practices highlight intentions associated with situated learning. Despite this, these activities are concentrated in the Natural Sciences area and scattered across grade levels, which creates limitations for their implementation in the pedagogical process. Even so, these experiential initiatives open the possibility of a meaningful approach. A relationship is observed between teachers' conceptions and difficulties in curricular integration.

Now, regarding lesson plans, the PRAE and the environmental studies course, the latter structured based on research and promoted by the Caquetá regional government reveal that there are elements contributing to this environmental initiative. Nonetheless, a weak adoption of what is described in institutional guidelines and its implementation in pedagogical practices was identified, demonstrating teaching actions isolated from what is proposed in the guiding documents.

This analysis addressed teaching conceptions, practices, and curriculum together with the aim of establishing a framework that enables a comprehensive understanding of these levels. It revealed that EE is a setting and time of transformation, related to the approach to contextualization and the territory; isolated and disjointed environmental practices; and curricular fragmentation that prevents meaning and connection with the curriculum. That said, the relationship between what the teacher thinks, their practices, and the curriculum is permeated by pedagogical decisions, institutional possibilities, and environmental conditions.

Based on this analytical foundation, it is asserted that the components shaping the guidelines emerge from the findings of the questionnaire and the documented pedagogical practices, thereby lending legitimacy to the research process and providing arguments for why curriculum guidelines are needed in EE. These guidelines are not impositions; on the contrary, they offer a flexible framework that allows for the integration of concepts, practices, and curriculum around environmental issues, which enable their reinterpretation from other contexts.

Conditions that Limit the Curricular Integration of Environmental Education

Having as reference the results obtained in the analysis, several interrelated factors were identified as actions that facilitate the incorporation of EE and how it interacts with curriculum design and development. These factors reflect existing conditions, including teachers' proposals, pedagogical practices, and local dynamics. One of the evident limitations in the research process was the fragmentation of the curriculum from preschool to secondary school. In practice, the environmental dimension continues to focus on knowledge of the natural sciences, hindering its cross-cutting approach. Despite this, ephemeral approaches were evident in the integrated lesson plans for Mathematics, Social Sciences, and Spanish Language that are not sustained throughout the academic year. Consequently, a fragile articulation between different areas of knowledge is perceived, making it difficult for environmental education to achieve its cross-curricular purpose.

Added to this is the gap between institutional guidelines and what actually happens in the classroom. Though the PRAE and the environmental studies course are presented as key orientations, their influence on curriculum development is not always consistently reflected in teaching practices; it makes known a hole between what is proposed and what is actually implemented. In this scenario, the PRAE and the environmental studies course acknowledge contextual issues but fail to guide curriculum organization, which disrupts their integration and results in projects that are not aligned with teaching.

In addition to the above, the lesson plans revealed the incorporation of isolated, problem-posing questions related to contextual situations. Nonetheless, their methodological development did not ensure the process of inquiry, analysis, and resolution of the issues raised; therefore, there is a perceived lack of intent in the approach to pedagogical actions aimed at problem-based learning.

Furthermore, the teaching practices identified have not been established as ongoing processes. In many cases, they are carried out as one-off experiences, without a sequence that would ensure continuity in learning. This limits their educational scope and prevents them from being integrated into the curriculum. This reflects that EE does not have a planned pathway that projects curricular progress as students advance through their academic journey at school, thereby preventing students from building structured environmental learning throughout their school life.

The analysis conducted revealed the different ways in which teachers understand EE. While some educators view it from a contextual and interdisciplinary perspective, others relate it to isolated ecological content. These findings show that teachers develop their pedagogical practices from their own perspective without institutional guidelines to standardize the process. Likewise, educational policies establish guidelines that, in reality, cannot be

fully implemented within school dynamics. Consequently, there is a gap between what is formulated in educational policies and what actually occurs in the school's pedagogical practices.

Thus, the limitations identified interfere with the successful implementation of the process of mainstreaming environmental education into the curriculum. Similarly, these obstacles are addressed as a primary source for grounding the EE curriculum guidelines within their limitations. In this way, it is recognized that the incorporation of the environmental dimension into the curriculum is determined by the decisions teachers make in accordance with what they think and believe is appropriate to address based on their disciplinary training and experience, demonstrating a disconnect between knowledge and understanding of educational policies.

Pedagogical Possibilities for the Curricular Integration of Environmental Education

The findings revealed not only problems but also strengths that contribute to the organizational structuring of pedagogical orientations leading to the harmonization of the society-nature relationship. Existing practices at the institution demonstrate possibilities for establishing links between learning and pedagogical activities related to the analysis of the natural and social environment, based on intentional observation; knowledge construction with community actors; and the recognition of local agricultural practices as valid elements.

Though some approaches to practices that jointly address the purpose of knowledge in relation to the environment are recognized, these lack continuous processes and disciplinary coordination that lead to pro-environmental goals in the curriculum, reflecting realities regarding what is proposed and what is actually implemented in the classroom. That said, it is recognized that the local territory serves as a central thread of learning, raising students' awareness of their own actions and what is happening in their environment.

From this perspective, pedagogical possibilities must be approached through flexible dynamics that allow for sustainability over time, by that means fostering holistic transformations in students based on educational intentions and curricular integration aligned with local realities.

Linkages between Environmental Education, Educational Policy, and the Rural Context

Throughout history, educational policies have been shaped by various social, political, economic, and cultural interests that have emerged. These policies have sought to bridge the gaps with the rural context, given that, due to its geographical and demographic conditions, among others, the quality of education in these settings is significantly lower. In addition to the above, the emerging environmental crisis has led to the establishment of a link between environmental education, the rural context, and educational policy in order to help mitigate contemporary socio-environmental problems, which influences teachers' pedagogical decisions.

Like that, educational policies outline institutional curricular frameworks, such as the PRAE and classroom plans. Although these guidelines exist, this does not guarantee that these practices are implemented immediately; consequently, interpretive and conceptual difficulties regarding the normative guidelines can be observed, reflected in educational processes. Therefore, their pedagogical implementation is approached from the teacher's perspective and how they choose to apply them in the context.

Hence, the Caguán River watershed takes on special relevance in relation to its territorial dynamics, problems, and ways of life. These conditions influence how interactions are interpreted and educational strategies are constructed. These actions enable students to explore socio-emotional and reflective experiences, fostering meaningful learning.

Indeed, the relationship between educational policy, curriculum, and rural context shows that the incorporation of EE cannot be resolved solely by what is mentioned in institutional documents, since it is necessary to achieve an understanding of its purposes so that teachers can incorporate educational mission into classroom practices. So, it is essential to have curricular guidelines that chart a clear path for how EE can be incorporated.

In this regard, the relationship between education policy, curriculum, and rural contexts reveals that, while this study demonstrated that the incorporation of the environmental dimension has moved beyond the regulatory level, specifically regarding the adoption of the PRAE in schools, but its objectives have remained confined to official documents. Hence, it is necessary to have curricular guidelines that provide educational actors with a clear and structured framework in order to advance to pedagogical processes that transform students and enable harmony with nature.

These findings show that EE must go beyond the existence of institutional guidelines or pedagogical projects. Its effective integration depends on how these frameworks engage with planning, classroom practices, and local conditions. Pedagogical mediation processes are required that can connect educational policy guidelines with local realities and school practices. From this perspective, the articulation between EE, educational policy, and the rural context helps establish key conditions for the development of curriculum guidelines aimed at integrating EE.

Curriculum Guidelines in Environmental Education from a Situated Approach: An Interpretive Synthesis for Their Construction and Reinterpretation

Based on the integration of the findings presented in the previous sections, we move toward establishing the foundations for environmental education (EE) curriculum guidelines that provide coherence to teaching processes within the studied context. These guidelines are grounded as guiding criteria that emerge from the analysis of teachers' conceptions, the pedagogical practices reflected in curriculum references, and the dynamics of the local territory.

In this sense, EE is conceived as a process that is not incorporated linearly into the curriculum, but rather is shaped by the relationship between multiple elements that interact within the school context. From this perspective, the environmental dimension cannot be understood as a component that can be automatically incorporated; on the contrary, it must be addressed and integrated progressively through a holistic approach. This allows for its genuine implementation in the classroom, harmonizing a curricular framework shaped by tensions, conditions, and pedagogical possibilities.

From this perspective, curricular guidelines emerge primarily from territorial dynamics, which connect with socio-environmental issues and the knowledge built within the community, giving rise to meaningful teaching practices. Furthermore, it is recognized that the teacher is the one who interprets the dynamics of their environment and the curricular documents addressed at the school to integrate them into the institutional educational project, thereby bringing coherence to the educational process.

Likewise, this analytical process allowed us to recognize that the environmental dimension interacts within a complex framework with various dimensions that represent the realities of environmental integration. Then, this curricular construct does not seek to be approached from a single dimension, but rather as a whole, thus, achieving an interpretive horizontality between the teacher's thinking, pedagogical practices, curricular references, socio-environmental tensions, and the institution's possibilities, throughout the progressive progression of the school level.

Subsequently, these curricular guidelines are conceived as flexible references that, for their implementation, need to be understood within the realities of each school context, without losing their structure or purpose. In this sense, their purpose is not to establish a single structure; on the contrary, this study seeks to provide the education system and educational institutions in particular with criteria so that each educational entity can redefine its curriculum around context-specific pedagogical decisions, consistent with its conditions, resources, and regional dynamics, thereby helping to close educational gaps between rural and urban areas.

Figure 1 presents a synthesis that organizes the elements involved in the construction and reinterpretation of environmental education (EE) curriculum guidelines, as well as the relationships established among them.

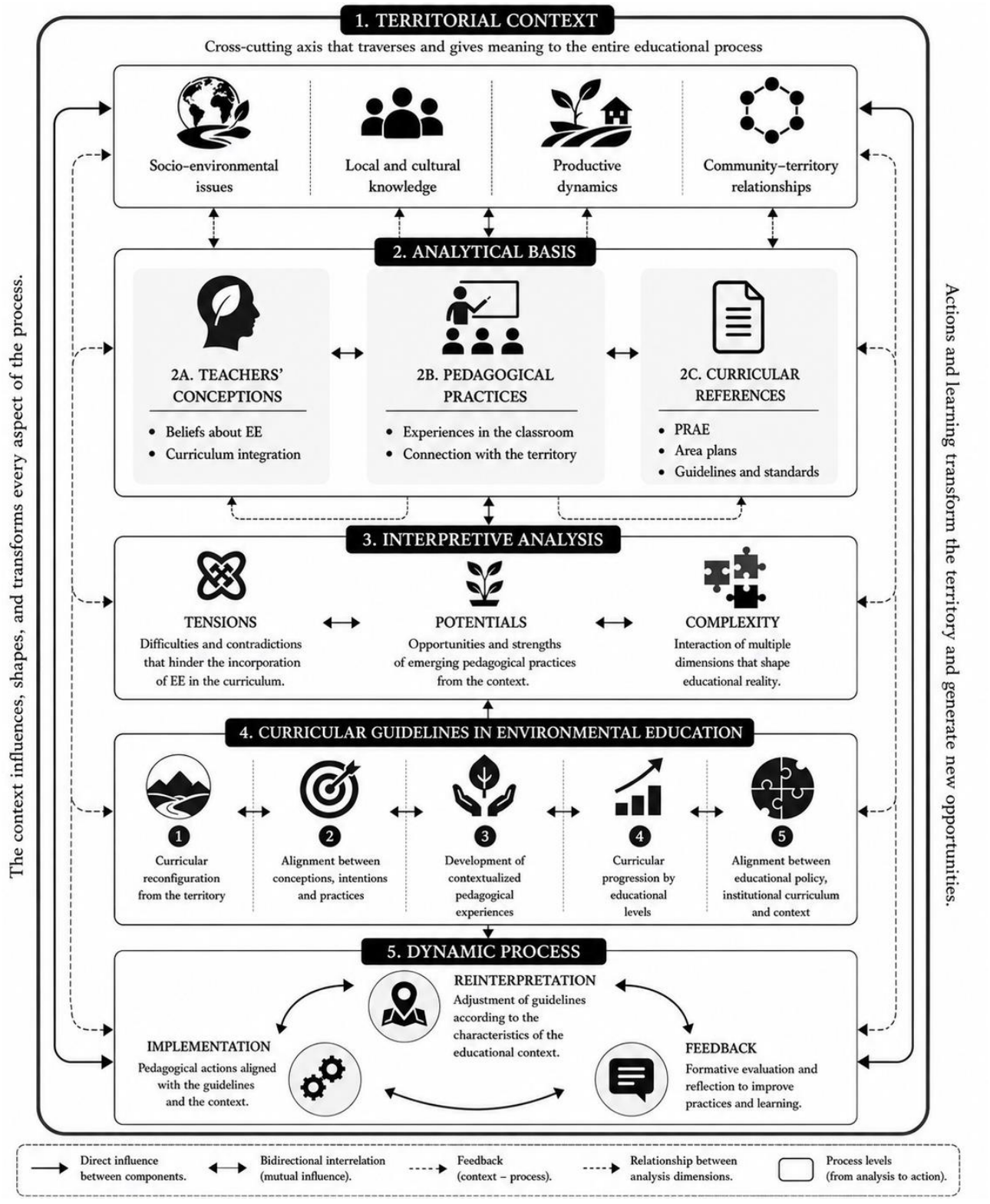

Figure 1: Interpretive synthesis for the foundation and reinterpretation of curriculum guidelines in environmental education **(Source: own work)**

Figure 1 presents an interpretive synthesis of the elements involved in the foundation and reinterpretation of environmental education (EE) curriculum guidelines. Its organization allows for an understanding of how different components are articulated in the incorporation of environmental content into the curriculum.

At the top is the territorial context, serving as a starting point, where socio-environmental issues, local knowledge, and community dynamics that guide the meaning of EE are recognized. Next, the figure depicts the core of this research's analysis, reflected in teachers' conceptions regarding pedagogical practices and curricular references, components connected through bidirectionality, illustrating the development of EE. The third level interprets and gives meaning to the three dimensions, which converge within a complex and multidimensional

dynamic. As a result, the proposal for the five curriculum guidelines that guide the incorporation of EE into the curriculum is established at level 5. Finally, a continuous, feedback-driven cycle is depicted in three phases. This demonstrates that EE is constructed as a dynamic, contextualized process with the potential for transformation.

Development of Curriculum Guidelines in Environmental Education from a Situated Approach

The interpretive synthesis presented in Figure 1 illustrates the framework underpinning the environmental education (EE) curriculum guidelines, conceived as guiding references in the effort to integrate environmental considerations into educational practice. This proposal aims to facilitate decision-making in accordance with local realities and institutional conditions.

From this perspective, the guidelines do not seek to standardize proposals, but rather to enable a coherent understanding of the curriculum that allows for connecting the territory, practices, the teacher's thinking, and institutional documents. However, for this to happen, teachers must continuously interpret their school context. In line with the results obtained, EE serves as the cross-cutting axis to traverse knowledge domains and permeate the PRAE and other institutional initiatives that connect socio-environmental issues with the curriculum, opening the possibility of linking learning with the community.

Within this framework, the guidelines are structured around five aspects that guide the implementation of pedagogical practice: the first aspect refers to the reconfiguration of the curriculum from the perspective of the local context, which seeks to structure teaching activities through socio-environmental issues, based on an interpretation that allows for the reorganization of existing practices; the second aspect focuses on the articulation between what is understood, planned, and developed in the classroom, representing concepts, educational intentions, and classroom practices; the third aspect addresses the construction of pedagogical experiences linked to the environment, articulated with the learning processes associated with the territory; the fourth aspect concerns the continuity of learning across school levels, establishing a common thread in the progressive trajectory of school levels; and finally, the relationships between educational policy, institutional organization, and local reality, which foster dialogue and establish a connection with the institution(s). These aspects form a fabric that gives meaning to each territory.

Guideline 1. Curricular Reconfiguration from the Territory

Designing a curriculum without taking into account the context in which the educational community exists is like returning to medieval times. A landscape that is home to diverse ecosystems intertwined with social, cultural, economic, and political dynamics that make each context unique. In light of this, in rural settings such as the Caguán River watershed, socio-environmental issues are part of community life and influence educational processes. For this reason, the curriculum is organized based on the realities of the context, recognizing that knowledge, problems, and experiential learning emerge from these settings, giving meaning to the learning process.

Taking the territory as the initial reference point for the pedagogical process is considered the first step toward perspectives that incorporate the territory's problems and experiences. Consequently, issues such as land use and water conservation are no longer addressed as isolated aspects but transcend to a cross-cutting plane that integrates areas of knowledge.

Pedagogical practice in the classroom reveals the process that precedes the development of a lesson plan. Because of this, it is appropriate to design lesson plans that include dialogues promoting student participation, with the aim of characterizing what is happening in their environment to establish a diagnosis of realities rather than scenarios from texts that depict unfamiliar territorial dynamics. In this sense, motivating students through questions embedded in the classroom curriculum allows for engaging and focusing the student on their environment. These questions include: What is happening in the environment? how can this relate to school content? In short, such questions make it possible to design lesson plans that integrate observation, inquiry, and reflection, fostering learning experiences closely tied to the student's daily life.

That said, lesson plans must facilitate a connection with the issues explored and identified in educational projects, particularly the PRAE in order to structure a dialogic curriculum that defines activities and strategies, using the problems emerging from these projects as a starting point for curriculum development. This approach allows for a horizontal integration across disciplines, thereby strengthening cross-curricular integration.

In this sense, curricular reconfiguration from the local context leads to understanding and organizing teaching in a different way, where the local context is first considered to plan and enable the design of relevant pedagogical proposals. Also, where learning is not limited exclusively to disciplinary content, but rather where this content is linked to the realities of the student's daily life.

Guideline 2. Coherence between Concepts, Intentions, and Practices

This point aims to raise awareness and strengthen the relationship between what teachers understand about EE, what they propose in the planning process, and what ultimately happens in the classroom. This is stated because it has been repeatedly observed that these dimensions do not progress in a coordinated manner. Though it is possible to find discourses that recognize the importance of context and socio-environmental issues, the planning and proposed activities continue to perpetuate traditional frameworks that are characterized by being largely disconnected from these realities.

This guideline does not pretend an immediate transformation of these conceptions. Its intention is to make them visible and to encourage a dialogue with pedagogical practice. Doing so would allow us to identify common points and, also, tensions that generally go unnoticed in daily work. Identifying these differences expand the possibility of adjusting planning and orienting teaching in a way that is more consistent with the proposed educational goals is expanded.

The meaning of the term "coherence" should not be understood as an ideal, static condition; on the contrary, it is considered as a progressively constructed process. It involves reviewing how learning objectives are formulated, how content is selected, and how classroom activities are developed. All of this should not be done in isolation. Efforts must be made to ensure a direct relationship between these elements. This rigorous becomes especially relevant when the aim is for EE to move from being a peripheral component and begin to be integrated more organically into the curriculum.

Similarly, this guideline also directly addresses the principles that the difficulties identified in the school environment and systematized in projects like the PRAE should not be not overlooked when developing instructional plans. Building coherence implies, in this sense, that the diagnosed problems are considered when curricular decisions are made for each subject area and, consequently, that what is taught is related to what is recognized as relevant in the environment.

The interpretation or reinterpretation of this guideline will depend on the conditions and the form in which teaching practice is developed. In some contexts, the emphasis may be on revising planning methods; in others, on creating spaces for collective work among teachers or on strengthening pedagogical reflection processes. In any case, its purpose remains the same: to foster greater alignment between teachers' understandings, educational intentions, and the practices accomplished with students.

Guideline 3. Development of Contextualized Pedagogical Experiences

Specifically, this topic focuses on how the teaching-learning process takes place in the classroom and whether it takes into account the characteristics of the local context, noting that it is there where environmental education takes on meaning for students. The aim is not to propose specific activities, but rather to strengthen the creation and construction of experiences that allow students to identify the causes of local issues based on their own experiences, inquiry, and reflection on real-life situations.

This guideline aims to overcome this fragmentation by promoting experiences that are consciously and intentionally aligned with the educational goals of EE and that endure over time. Pedagogical practices related to the environment are often carried out as one-off activities: a field trip, an ecological day, or an awareness-raising activity. Despite they have educational value, they can be isolated from broader learning processes.

Activities can be planned such as exploring the local area, engaging in dialogue with the community, observing to learn about productive practices, or pausing to analyze how everyday situations are resolved. In this way, students would not only engage with certain content but also begin to understand more deeply how social and environmental dynamics are intertwined from a perspective that restores fieldwork or field trips. This approach would permit students to move beyond the classroom and explore possibilities that authentically connect what is learned in school with what happens outside of it. From this perspective, learning is not simply about receiving information; it is about fostering direct contact with the environment.

It is not a matter of "taking students outside"; rather, the aim is to propose and create processes that integrate the experience of going outside with the goals of observing, reflecting, and opening up discussion to facilitate the construction of meaning. This is where methodologies that promote inquiry, project-based work, and problem analysis become relevant, as they allow for the integration of different subject areas around concrete situations and foster meaningful learning. Moving in this direction requires a strong commitment to self-criticism that allows us to review and reflect on how educational field trips are conceived.

The key is that they maintain their situated nature and contribute to establishing meaningful connections between the teaching-learning process and the environment. Depending on the educational community in some settings, the proposed experiences may be linked to the school garden, water management at the institution or in homes; in others, to urban or community issues.

This fosters the development of more relevant learning, in which students can recognize, question, and understand the socio-environmental dynamics that are part of their reality. Thus, the development of contextualized educational experiences is not limited to the incorporation of different activities, but rather represents a way of understanding teaching in which the context ceases to be an external reference and becomes part of the educational process.

Guideline 4. Curricular Progression by Educational Levels

This guideline focuses on the continuity of the educational process, recognizing that EE is not built in a single moment or through isolated experiences, but rather throughout a student's educational journey. In this regard, it proposes structuring the curriculum so that environmental learning develops gradually, taking into account the characteristics of each educational level.

Often, experiences related to EE appear in a fragmented manner, lacking a clear connection between what is covered in the early grades and what is addressed in later levels. This difficulty highlights that, within the school context, the lack of continuity in these processes is a significant limitation that impede to build complex understandings and, consequently, the sustainability of projects aimed at consolidating meaningful learning.

Given this situation, the guideline proposes viewing EE as a process that is socialized, incorporated, expanded, and made more complex over time. In the early grades, this can begin with recognizing nature through exploration of the immediate environment, as well as by fostering the development of caring attitudes. Then, as students progress through their school journey, opportunities can be created to identify and analyze more complex issues, thereby establishing relationships between different factors and encouraging reflection on the social, economic, and cultural implications of socio-environmental dynamics.

Planning this progression is not limited to content alone. It also involves other ways of learning. While observation, play, and exploration predominate in the early years, inquiry, analysis, and argumentation will become more relevant in latter grades. In this way, a gradual development is fostered that integrates different skills and allows students to build a conscious understanding of their environment.

Recognizing that learning is built gradually opens the possibility of consolidating experiences that not only connect with each but also respond to the realities and current circumstances of the environment. The way this progression is organized can vary according to institutional conditions and the particularities of the context. That said, it is necessary to note that the goal is not to establish a single sequence, but rather to guide the construction of educational pathways that are meaningful for the educational community.

If these considerations are taken into consideration, curricular progression by educational levels will effectively contribute to the integration of EE into the curriculum, insofar as it allows to overcome fragmentation and move toward coherent educational processes. In this way, EE ceases to depend solely on individual initiatives and is positioned as a process that engages with educational policy, the curriculum, and the context, fostering more consistent integration in school practice. In some cases, this may involve strengthening the articulation between campuses or levels; in others, reviewing planning methods to ensure continuity in the processes.

Guideline 5. Coordination between Educational Policy, Institutional Curriculum, and Context

The aim of this point is to bridge the gap between what is set forth in educational guidelines, what is defined in institutional documents, and what actually happens in the classroom. Given that the context of the Caquetá department includes references such as the PRAE and the environmental studies course built from regional research processes that offer bases for this articulation. It has been observed that their impact on the planning of the areas is still restricted.

For the reasons stated above, it is proposed that these frameworks cease to operate in parallel or in an uncoordinated manner and instead guide specific curricular decisions. This implies, for example: first, taking the socio-environmental issues identified in the PRAE as a starting point for subject planning; second, organizing content and activities around themes or threads that allow for mainstreaming; and third, establishing explicit relationships between educational objectives, pedagogical strategies, and context.

Of course, implementation must take into consideration the circumstances and geographic location of each institution. Depending on the context, the emphasis will be on revising planning; in some of them, on strengthening spaces for collective work or adjusting monitoring mechanisms. In others, on proposing or adjusting pedagogical outcomes in line with experiential learning criteria. The key is that educational policy, the curriculum, and the local context finish to be disconnected and succeed in building bridges of effective dialogue that focus on learning outcomes resulting from situated pedagogical practice.

DISCUSSION

There are findings that reveal and confirm a previously documented trend regarding environmental education (EE): it remains at the declarative level, with difficulties in influencing the actual organization of teaching (Torres Carrasco, 1998; González-Gaudiano & Meira-Cartea, 2020). The research findings add to the body of evidence supporting the aforementioned guideline, since, although its presence is confirmed in institutional documents, there is a need to ground curricular guidelines by demonstrating that EE fails to establish itself as one of the core pillars of the curriculum.

There are also previous studies that assert that the integration of sustainability depends less on its formal inclusion and more on the pedagogical decisions made in the classroom (Corres et al., 2024; Cebrián et al., 2025). In the case analyzed, this limitation manifests itself in the gap between educational objectives, pedagogical practices, and curricular frameworks. Teachers recognize the importance of environmental issues and develop some experiences related to the environment; however, these are not sustained or systematically integrated.

Environmental education is not transformed by the existence of institutional projects, but rather by its capacity to influence and guide curriculum organization. This finding aligns with other experiences in Caquetá, where strategies such as guiding threads have been proposed to mainstream the PRAE; despite this, their adoption in teaching practice remains limited: while this tool allows for the identification of context-relevant issues, its impact on curriculum planning remains very limited.

Research highlights the need to move toward critical approaches that integrate social, political, and cultural dimensions (Sauvé, 2005; Stevenson et al., 2020). Even so, the case study conducted confirms that teachers' conceptions directly influence how environmental education is approached. In general, approaches focused on raising awareness and caring for the environment predominate; while this is important, it can hamper the ability to address current socio-environmental issues and challenges from a complex perspective.

Hence, the potential of the context does not automatically translate into integrated and comprehensive pedagogical approaches, which confirms that contextualization efforts require intentional pedagogical interventions. In rural settings, the tensions described become even more complex: while the local environment offers favorable conditions for linking learning to daily life, curricular fragmentation and weak interdisciplinary coordination between subject areas hinder this process.

What path will allow us to move toward a more coherent integration of EE with the conditions of the environment? The contribution of the proposed guidelines lies in inviting a shift in focus from the formulation of projects toward the organization of the teaching-learning process, recognizing the territory as a reference point and the PRAE as a starting point for planning. The guidelines do not seek to introduce new elements into the curriculum, but rather focus on guiding how existing elements can be articulated.

CONCLUSIONS

Environmental Education only becomes truly meaningful when it connects what is taught with the students' live experiences. In geographical areas like the Caguán River watershed, this means that teachers must consider the territory not only as a point of reference, but also as a criterion for pedagogical decision-making, and that this decision-making must be conscious and intentional.

Environmental Education is present in schools. The research shows, however, that it fails to influence curriculum organization. It is stated in documents and projects, but its impact on subject-area planning is very limited. This finding explains why many processes are interrupted or lack continuity.

In practice, subject areas continue to plan based on their own content, without considering the identified problems as a starting point. This reduces the possibility of developing integrated, coherent, and sustainable proposals over time. One of the clearest findings is the use of PRAE in lesson planning, which helps identify environmental problems but does not guide the teaching and learning process.

Teachers recognize the value of the local context and therefore propose and develop experiences that connect learning with reality; this could be considered progress. The difficulty lies not in the absence of such practices, but in the lack of integration with the curriculum. Actions tend to depend on one-off initiatives and are not sustained over time. Given the circumstances described, the proposed guidelines aim to organize what already exists, they do not introduce new elements. They guide the relationship between the PRAE, classroom planning, and the institutional curriculum. The goal is to use the socio-environmental issues identified in the local context as a basis for organizing instruction.

It is recommended that the guidelines not be applied uniformly. Their greatest strength lies in offering flexible guidance that supports and provides continuity to existing processes or experiences and, above all, contributes to the challenge of building and strengthening coherent relationships between context, curriculum, and teaching practice. Each institution will need to reinterpret and adapt them to its specific conditions.

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