

**ENVIRONMENTAL EDUCATION AND CLIMATE CHANGE: A STUDY OF THE
ELEMENTARY SCHOOL CURRICULUM IN THE AMAZONIAN CONTEXT OF
ABAETETUBA, PARÁ**

**EDUCAÇÃO AMBIENTAL E MUDANÇAS CLIMÁTICAS: UM ESTUDO SOBRE O
CURRÍCULO DO ENSINO FUNDAMENTAL NO CONTEXTO AMAZÔNICO DE
ABAETETUBA, PARÁ**

**EDUCACIÓN AMBIENTAL Y CAMBIO CLIMÁTICO: UN ESTUDIO SOBRE EL
CURRÍCULO DE LA ESCUELA PRIMARIA EN EL CONTEXTO AMAZÓNICO DE
ABAETETUBA, PARÁ**



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ABSTRACT: Environmental education is a key component in building critical pedagogical practices. In the Amazonian context, it becomes even more complex and urgent, especially facing the impact of climate change. This documentary research analyzed the official Curriculum of the municipality of Abaetetuba, for the initial years of elementary education. The results reveal significant gaps in relation to climate change and traditional communities. These gaps are worrying, as they show lack of urgency in training critical, active individuals, facing a climate crisis that affects, above all, traditional communities. The discussion about these communities is restricted to specific skills, without consolidating an intercultural and contextualized perspective that values their knowledge and way of life. The recent creation of the curricular component Environmental Education, Sustainability and Climate creates challenges related to interdisciplinarity, scarcity of didactic materials contextualized to the Amazonian reality, and teacher training.

KEYWORDS: Basic education. Environmental Education. Curriculum. Traditional communities.

RESUMO: *A educação ambiental constitui-se um campo fundamental para a construção de práticas pedagógicas críticas. No contexto amazônico, torna-se ainda mais complexa e urgente, especialmente diante dos impactos das mudanças climáticas. Esta pesquisa, de caráter documental, analisou o Documento Curricular do município de Abaetetuba, referente aos anos iniciais do ensino fundamental. Os resultados evidenciam lacunas significativas em relação às mudanças climáticas e às comunidades tradicionais. Essa ausência revela-se preocupante, pois desconsidera a urgência da formação de sujeitos críticos e atuantes diante da crise climática que afeta, sobretudo, as comunidades tradicionais. A discussão sobre estas comunidades está restrita a habilidades específicas, sem consolidar uma perspectiva intercultural e contextualizada que valorize seus saberes e modos de vida. Com a criação do componente curricular Educação Ambiental, Sustentabilidade e Clima, emergem desafios relacionados à interdisciplinaridade, à escassez de materiais didáticos contextualizados à realidade amazônica e à formação docente.*

PALAVRAS-CHAVE: Educação Básica. Educação Ambiental. Currículo. Comunidades tradicionais.

RESUMEN: *La educación ambiental es un campo fundamental para el desarrollo de prácticas pedagógicas críticas. En el contexto amazónico, la situación se torna aún más compleja y urgente, especialmente a la luz de los impactos del cambio climático. Esta investigación documental analizó el Documento Curricular del municipio de Abaetetuba, referente a los primeros años de educación primaria. Los resultados resaltan brechas importantes en relación con el cambio climático y las comunidades tradicionales. Esta ausencia es preocupante porque desconsidera la urgente necesidad de formar individuos críticos y activos frente a la crisis climática que afecta particularmente a las comunidades tradicionales. La discusión sobre estas comunidades se limita a competencias específicas, sin consolidar una perspectiva intercultural y contextualizada que valore sus conocimientos y formas de vida. Con la creación del componente curricular Educación Ambiental, Sostenibilidad y Clima, surgen desafíos relacionados con la interdisciplinariedad, la escasez de materiales didáticos contextualizados a la realidad amazónica y la formación docente.*

PALABRAS CLAVE: Educación básica. Educación Ambiental. Currículo. Comunidades tradicionales.

INTRODUCTION

In the current context, climate change is the most serious problem facing humanity, with impacts on health, employment, food production, access to resources, housing, forced migration, and, consequently, the maintenance of quality of life (Saxena, 2025). In the Amazon region, extreme events associated with the effects of climate change are already becoming increasingly frequent, with direct and indirect repercussions on local communities, such as riverine communities, *quilombolas*, and family farmers, whose livelihoods are based primarily on extractive activities and traditional agricultural practices (Fearnside, 2009).

This is a cause for concern, as traditional communities play an important role in preserving the environment and biodiversity through their traditional natural resource management practices (Hudson & Vodden, 2020; Salick & Ross, 2009), making it urgent to adopt strategies that help address climate change, such as environmental education.

Environmental education plays an essential role in addressing the climate crisis, as it is through this education that individuals develop a critical awareness of their individual and collective responsibility in this context. In this regard, authors such as Carniatto et al. (2025) advocate for the need to develop climate-focused environmental education which, by contributing to the formation of citizens who are more critical and better prepared to confront the current environmental crisis, “can promote changes in habits, increase social engagement, and support the creation of public policies aimed at sustainability” (p. 313).

The relevance of climate environmental education as a strategy for building more resilient communities, that are better prepared to face climate challenges, is directly related to how this knowledge is organized, systematized, and internalized within the educational context. In this sense, the curriculum plays a central role, as it organizes and selects the knowledge that society considers important within a given historical context. By defining what and how to teach, it expresses collective values and needs, characterizing itself as a social construction of knowledge and guiding the way in which this knowledge is transmitted and assimilated in schools. Therefore, production, transmission, and assimilation constitute processes that make up a methodology for the collective construction of school knowledge, that is, the curriculum itself (Veiga-Neto, 2002).

Curriculum design must take into account the specific territorial and sociocultural characteristics of the contexts in which it is implemented, especially in regions such as the Amazon region of Pará, where sociocultural diversity, environmental complexity, and territorial

challenges call for educational approaches that are contextualized within the framework of “Amazonizing” education (Alves Pereira et al., 2024).

However, the formulation of educational curriculum policies reveals the persistence of an epistemological and Eurocentric universalism that limits the possibility of recognizing individuals in their sociocultural diversity and their plural and multifaceted identities (Lopes, 2018), disregarding, for example, the “heterogeneity” of the Amazon region, which is expressed in the daily lives, work, and social, cultural, and educational relationships of the people who live here, and which must be valued and incorporated into the processes and spaces for the development and implementation of educational proposals for the region (Hage, 2005).

Accordingly, this article, based on the first author’s master’s thesis, aims to investigate how the elementary school curriculum in the early grades of the municipality of Abaetetuba incorporates environmental education and discussions on climate change, thereby contributing to reflections on pedagogical practices that are contextualized and aligned with the real needs of traditional communities in the Amazonian context.

METHODOLOGICAL PROCEDURES

This study adopted a qualitative approach (Moura et al., 2021) and employed the Document Analysis method (Lima-Júnior et al., 2021), which serves as an important tool for understanding the historical and social aspects of the phenomenon under study (Sá-Silva et al., 2009). To this end, we analyzed the guidelines pertaining to the early years of elementary school from the following instruments of the Abaetetuba municipal public education system: i) Abaetetuba Municipal Curriculum Document (DCMA): early childhood education and elementary school (early years) (Abaetetuba, 2019); and, ii) the Environmental Education, Sustainability, and Climate (EASC) (Abaetetuba, 2025a) curriculum component for the early and final years of elementary school and Youth and Adult Education (EJA).

The DCMA, developed in accordance with the National Common Core Curriculum (Brazil, 2017) and the Pará State Curriculum Document (Pará, 2018), is structured into 13 sections: a) 1–7: present the concepts, principles, and guidelines that guide the teaching-learning process; and b) 8–13: define the essential content and skills that should be developed with students in each curricular component (Abaetetuba, 2019).

The EASC curriculum component was incorporated into the Abaetetuba municipal school system’s curriculum framework as a specialized component in 2025, pursuant to

Resolution No. 3/2025 of the Municipal Board of Education (Abaetetuba, 2025b), replacing the “Aspects of Civic Life” component. This change is linked to the municipality’s adoption of the Formal Education Policy for the Environment, Sustainability, and Climate, created by the state of Pará under State Law No. 9,981/2023 (Pará, 2023). The curriculum framework for elementary school, early grades, presents, for each two-month term, four thematic units (Planet Earth: getting to know our home; Water and sanitation; Biodiversity; Climate Change), the subjects of study, and the skills to be developed.

The document analysis of the DCMA and the EASC curriculum component was conducted in the following stages:

- a) Reading, selecting, and interpreting excerpts from sections 1 through 7 of the DCMA to identify the concepts, principles, and guidelines related to the theoretical and methodological foundations of environmental education and the thematic units “Climate Change” and “Traditional Communities.”
- b) Analysis of the DCMA curriculum components (sections 8 through 13) and the EASC curriculum component, with an emphasis on its skills for the thematic unit Climate Change, seeking to verify “whether” and “how” this document addresses environmental education in relation to climate change and traditional peoples and communities, as well as to identify any gaps or weaknesses in the approach to these themes. To this end, a keyword search was conducted (“environmental education,” “climate change,” and “traditional communities,” as well as related expressions such as “extreme weather events” and “local knowledge”) using a text search tool, with the aim of verifying the number of mentions in the document and extracting excerpts for analysis. Next, the contexts in which the terms appeared were analyzed to understand the approaches attributed to these themes within the document.

RESULTS AND DISCUSSION

An analysis of sections 1 through 7 of the DCMA (Abaetetuba, 2019) identified key elements related to the theoretical and methodological foundations of environmental education and the thematic units “Climate Change” and “Traditional Communities,” presented under the following categories: i) Curriculum Design; ii) Education for Environmental, Social, and

Economic Sustainability; and, iii) Territorial Dimensions and Traditional *Quilombola* Knowledge.

Curriculum design

The DCMA's approach to curriculum design is grounded in a "critical perspective," according to which the curriculum should "guide the pedagogical practices to be developed within municipal schools" (Abaetetuba, 2019, p. 9). However, the presence of the following was also identified: i) critical curriculum theory, supported by authors such as Apple (1996), Freire (1996), Libâneo (1998), Sacristán and Gómez (1998), and Veiga-Neto (2002), who view the curriculum as a social and political practice aimed at the democratization of knowledge and the formation of critical subjects capable of transforming reality, where the school not only transmits knowledge but also problematizes it in relation to inequalities and power relations; and, ii) the post-critical approach, supported by authors such as Moreira (1998) and Moreira and Silva (2009), who understand the curriculum as a cultural construction marked by disputes over meaning, emphasizing themes such as identity, difference, gender, ethnicity, and critical multiculturalism.

The simultaneous use of critical and post-critical theories gives rise to conceptual and methodological contradictions, since they are based on different foundations. Furthermore, without consistent theoretical reflection, this practice results in fragmented or incoherent proposals that sometimes treat the curriculum as a political instrument for social awareness and at other times as a space for the symbolic construction of identities, without clearly articulating these dimensions. Thus, the risk is a loss of analytical depth and clarity in educational objectives, weakening the transformative power that each theory, within its own field, could offer.

Furthermore, the DCMA views the curriculum as a process of collective construction, a perspective supported by authors such as Freire (1996) and Sacristán (2000). In this sense, it highlights the importance of developing a curriculum proposal collectively, arguing that rather than merely guiding school practices, the curriculum should emerge from the realities of communities, valuing their knowledge, their ways of teaching and learning, and their ways of understanding the world, namely:

The curriculum should prioritize the organization and development of a collective effort, in which all those involved in the school environment, including school administrators, educators,

and scholars, can collaboratively develop a document in an ethical and democratic manner, fostering meaningful learning that expands and solidifies constructive knowledge. This approach contributes to critical, creative, active, politically engaged, and inclusive learning, while respecting and valuing the unique characteristics, the regional, local, and community culture in which the student is embedded, through actions that enable the student to be an integral and active participant in the educational process. (Abaetetuba, 2019, p. 19)

Education for environmental, social, and economic sustainability

The DCMA emphasizes that schools should provide opportunities to discuss socio-environmental issues with their students, highlighting:

Neglect, crime, environmental degradation, and disregard for the environment at the national, regional, municipal, and local levels (cities, rural areas—roads and side roads—lands), the conflicts and consequences of the realities experienced due to the inappropriate use of natural resources, as well as the introduction of industries and their impacts on the social, economic, and cultural life of these communities/villages, and finally, working together to create strategies to improve the quality of life of these populations. (Abaetetuba, 2019, p. 25)

Furthermore, it emphasizes the need for schools to provide a space for studies on the development of sustainability, considering the need for “students to learn about, discuss, and re-educate themselves and, consequently, their families, and the school and surrounding communities, regarding the social context of the neighborhood, community, and village, and what each area needs or is doing differently” (Abaetetuba, 2019, p. 26). All of this is grounded in the following three pillars: i) Environmental: refers to the planet’s natural resources and how they are used by society, communities, or companies; ii) Social: discusses the individual’s relationships and living conditions, particularly regarding education, health, violence, leisure, and other aspects; and, iii) Economic: related to the production, distribution, and consumption of goods and services; the economy must take social and environmental issues into account.

However, it is observed that this approach is limited to the transmission of information, without achieving the depth necessary to foster critical awareness that examines the socio-environmental conflicts resulting from the unchecked exploitation of natural resources and territorial inequalities (Costa & Loureiro, 2024; Tozoni-Reis, 2006).

It is considered that, although the document contains passages that highlight respect for the environment, it fails to address issues related to climate change, as it does not provide for

the creation of spaces for reflection and/or training on the subject, building capacities and fostering social and individual attitudes to promote mitigation and adaptation to its effects. In this regard, the assertion by Monroe et al. (2017) is corroborated, according to which effective education on climate change must integrate active and participatory pedagogical approaches centered on themes that are meaningful and relevant to students. Furthermore, it should encourage engagement in deliberative discussions, deconstruct misconceptions about the topic, and foster participation in school or community projects. In this regard, it is essential to broaden the debate on climate change within the school context, linking it to the curriculum.

Territorial dimensions and traditional quilombola knowledge

In this category, the DCMA highlights the *quilombo* territories of Abaetetuba:

these territories are marked by the symbols, myths, and rituals associated with natural resources, as well as Afro-Brazilian and African religious rituals. These territories embody the mythological imaginary, a deep understanding of nature and its cycles, which are reflected in the development of strategies for the use and management of natural resources and in the recognition of the territory as collective property. (Abaetetuba, 2019, p. 75)

To this end, the document emphasizes that *quilombola* communities have “a close relationship with nature, and a way of life and culture that are directly linked to it,” developing sustainable practices within their territories based on family farming, in which work is carried out collectively by parents, children, and close relatives, grounded in traditional and empirical knowledge, especially in the field of agroecology “such as types of vegetables, planting methods, knowledge of fruit harvests, measures used to gauge crop yields, and the ability to determine the moon’s phase for planting” (Abaetetuba, 2019, p. 77). The document also highlights as fundamental the adoption of practices that enable “respecting and prioritizing the traditions and local knowledge” of these groups, since “this knowledge has been developed through the daily practice of resistance and the maintenance and reproduction of their characteristic ways of life, which reflect their identities” (Abaetetuba, 2019, p. 78).

Based on this analysis and recognizing that, through their long-standing and close relationship with the environment, traditional communities have developed, over generations, a body of knowledge and practices focused on the use and management of natural resources, which also enables them to identify the effects of climate change, the DCMA should build on

this relationship by proposing a curriculum that values traditional knowledge. For one of the ways to understand the effects of climate change on traditional communities is through traditional knowledge, whose potential for understanding climate change and for developing adaptive strategies has been increasingly recognized (Brook & McLachlan, 2008; Joa et al., 2018). However, incorporating this knowledge into curriculum discussions faces a series of challenges, such as the lack of recognition and appreciation of this knowledge, the difficulty of integrating it into the curriculum, and the very heterogeneity and diversity of this traditional knowledge (Pereira & Diegues, 2010).

It is worth noting that education in *quilombola* communities is not limited to the occasional inclusion of specific content, but rather aims to develop a curriculum understood as a document of identity. This implies recognizing fundamental ethnic-racial, political, historical, and geographical dimensions (Pinar et al., 1995) as the structural pillars of curricular proposals that engage with the reality of these communities. However, upon analyzing the DCMA, it is observed that such perspectives appear in a timid and fragmented manner. This absence reveals that while there is a demand for a curriculum that serves as a space for resistance and the affirmation of memories and territorialities, the DCMA tends to reproduce a curricular framework that offers little recognition of the specificities of the *quilombola* and Amazonian communities.

Skills covered by the DCMA curriculum components

Table 1 shows the frequency and citation context of the terms “environmental education,” “climate change,” and “traditional communities,” as well as related expressions such as “extreme weather events” and “local knowledge,” highlighting a low frequency of themes central to the debate on environmental education and climate change in the context of traditional communities.

The absence of any mention of the terms “climate change” and “extreme weather events” reveals a silence surrounding an urgent and central issue for the critical development of individuals, running counter to current socio-environmental debates and the development of an education focused on sustainability and climate justice (Kapranov, 2024), especially in the Amazon, where extreme events associated with the effects of climate change are already becoming increasingly frequent, with direct and indirect impacts on local subsistence activities, particularly among highly vulnerable populations, such as traditional communities, whose

livelihoods are based, for the most part, on extractive activities and traditional agricultural practices (Santos et al., 2023).

The term “traditional communities” appears twice in the document within the Geography curriculum component (Abaetetuba, 2019), indicating that the skills proposed in the curriculum under study do not take into account the knowledge, ways of life, cultural values, and challenges faced by traditional communities. As a result, the document ends up contradicting the very principles it claims to value, such as inclusion, diversity, and respect for Amazonian cultural identities.

Table 1
Frequency and context of search term citations in the DCMA

Term	No. of citations	Curricular Component	Skills
Climate change	0	-	-
Environmental education	2	4th Grade/2nd Bimester. Subject Area: Religious Education. Curriculum Component: Religious Education	(EF04ERAB) Understand that religiosity shapes education in all its forms, including environmental education.
		5th Grade/2nd Bimester. Subject Area: Religious Education. Curriculum Component: Religious Education	(EF04ERAB) Understand that religiosity shapes education in all its forms, including environmental education.
Traditional communities	2	1st Grade/4th Bimester. Subject Area: Social Studies. Course Component: Geography.	(EF03GE03) Recognize the different ways of life of traditional peoples and communities in various places.
		3rd Grade/1st Bimester. Subject Area: Social Studies. Course Component: Geography	(EF03GE03) Recognize the different ways of life of traditional peoples and communities in various places.
Local knowledge	0	-	-
Extreme weather events	0	-	-

Note. Prepared by the authors based on data from Abaetetuba (2019).

Although the inclusion of this skill is a positive sign of an effort to value sociocultural diversity, its limited occurrence (only two mentions in specific years and semesters) indicates that such recognition is not a core component of the curriculum, but rather a one-off topic. Studies such as those by Furtado and Carmo (2020) and Santos and Andrade (2020) indicate that the school curriculum often diverges from the practices, knowledge, and lived realities in Amazonian contexts, especially in riverine and *quilombola* communities, where national and local curricula engage little with the traditional cultures and ways of life of these territories.

Thus, it is understood that the superficial treatment of traditional communities in the skills outlined in the DCMA points to the need for a curriculum revision that places these communities and their knowledge at the center of educational processes. As argued by authors such as Arroyo (2017) and Hage (2005), the curriculum must recognize the historical subjects inhabiting educational territories and incorporate their knowledge and practices as constitutive elements of the educational process.

The term “environmental education” appears exclusively in the learning objectives of the Religious Education curriculum component for 4th and 5th grades. This objective, present in both grades, aims to help students understand that religiosity can foster educational relationships across various dimensions, including environmental education. This is a limited approach, as it restricts the environmental discussion to a symbolic and subjective realm, without delving into the scientific, political, and social dimensions that surround it, revealing a gap in the interdisciplinarity expected of environmental education, which should cut across various areas of knowledge in a more integrated and critical manner, in accordance with the guidelines of the national curriculum and international documents on education for sustainability (Brasil, 2012).

In this regard, environmental education plays a fundamental role in raising public awareness and promoting actions aimed at adapting to and mitigating the effects of climate change—not only in preserving ecosystems and protecting the general population, but above all in defending socially vulnerable groups, who are the most severely affected by these changes (Carniatto et al., 2025).

The EASC curriculum component

The inclusion of the EASC curriculum component in the curriculum of Abaetetuba’s municipal schools represents a significant step forward, as it recognizes its ability to raise awareness and encourage action. However, from both a legal (Brazil, 1999) and a theoretical-methodological (Morin, 2015; Veiga-Neto, 2008) perspective, environmental education is conceived as an integrated, continuous, and permanent practice that should be present at all levels and in all forms of formal education, without, however, being implemented as a specific subject in the curriculum.

According to Morin (2015), a systematic and progressive approach to environmental education enables the development of a society that is aware, engaged, and capable of addressing socio-environmental challenges. It should be noted that transversality, in this

context, does not imply a lack of organization, but rather the possibility of integrating knowledge and practices across different fields of study, as observed by Veiga-Neto (2008). This perspective requires a reorganization of the curriculum to view environmental education not as a marginal subject, but as a central pillar for building an education system committed to critical sustainability.

A key feature of this curriculum component is the thematic unit on Climate Change (Table 2), as it recognizes that education on this topic represents an innovation in the educational context. By addressing, in a more direct manner, the causes, consequences, and social dimensions of the climate crisis, it encourages reflection on the modes of production and consumption that intensify ecological imbalances. By proposing skills aimed at understanding local impacts and promoting mitigation and adaptation actions, these skills reflect an effort to integrate climate environmental education into everyday school life.

Table 2
Skills required for the Climate Change thematic unit

Grade	Skills
1st grade	(EF01EASC10): Learn about the concept of climate change through educational videos, discussion groups, group activities, games, and other activities; (EF01EASC12): Identify the impacts of climate change in the municipality where you live using images, drawings, accounts from residents of affected areas, discussion groups, cut-and-paste projects, and other methods.
2nd grade	(EF02EASC10): To learn about the concept of climate change and the human activities directly linked to it, through games, group activities, videos, and discussion circles; (EF02EASC11): Understand the impacts of climate change on water, air, and soil, as well as on the lives of people in urban and rural areas, through images, collages, parents' accounts, and field trips.
3rd grade	(EF03EASC10): To identify the impacts of climate change on communities in the Brazilian Amazon, particularly in the areas of health and housing, through photographs, maps, documentaries, and community discussions with residents; (EF03EASC11): Identify the main drivers of climate change — such as the excessive burning of fossil fuels, water waste, deforestation, and pollution — using images, videos, documentaries, short films, and interviews with representatives of social and environmental movements, among other resources; (EF03EASC12): Learn about the renewable energy sources used by humans in the past and present through classroom lessons, field trips, conversations with elders in the community or neighborhood, and research in libraries or online.
4th grade	(EF04EASC12): Share experiences of sustainable practices developed in the municipality through dialogues with nature conservationists, artistic and cultural exhibitions, and accounts of experiences with <i>miriti</i> and bio-jewelry artisans, gourd craftspeople, and others; (EF04EASC11) Understanding changes in the rhythms of nature as a result of global climate change; visiting sites that have been affected by environmental impacts.
5th grade	(EF05EASC10) To identify and describe the main impacts of climate change on food security among the Amazonian populations of Brazil, through reflections, discussions, texts, images, and news reports; (EF05EASC11) Identify and discuss the environmental impacts caused by large-scale food production, drawing on documentaries, research from books and/or websites, among other sources.

Note: Prepared by the authors based on data from Abaetetuba (2025a).

Among the skills outlined in the Climate Change thematic unit, the following stand out: i) engaging in listening sessions with community or neighborhood elders; ii) listening to representatives of social and environmental movements; and iii) holding dialogue circles with

residents and hearing accounts from residents of affected areas. This approach makes it possible to gather information that bridges scientific knowledge and local knowledge, fostering the development of new understandings.

Another point worth highlighting is the recognition of the need to address climate change not only as a scientific phenomenon, but also as a social, ethical, and political issue, whose causes and consequences disproportionately affect different populations and territories. In this sense, the educational approach to climate change must go beyond the transmission of information, promoting critical, participatory education committed to transforming the social practices that intensify the environmental crisis, in order to encourage student agency in the face of environmental crises, transforming the school into a space for resistance, awareness, and the construction of collective solutions (Costa & Loureiro, 2024; Souza & Andrade, 2026).

Therefore, discussing climate change in schools requires recognizing that children's education during the early years of elementary school is a crucial stage in the development of environmental values, attitudes, and perceptions. Thus, by introducing this topic at this educational level, the possibility arises to develop critical awareness from an early age, fostering pedagogical practices that engage with both scientific knowledge and the local knowledge of the communities in which the school is situated.

This process occurs through the integration of science and traditional knowledge, drawing on the repertoire that students already bring with them to jointly develop learning experiences focused on the sustainability of the local environment. From this perspective, even though popular knowledge often lacks scientific validation and is therefore marginalized by academia, it can be considered a legitimate source of knowledge, capable of engaging in a complementary dialogue with formal education when mediated by scientific knowledge (Chassot, 2006).

The local knowledge of traditional communities serves as an educational resource that can affirm not only a historically, socially, and culturally distinct territory, but also an educational space that values traditional knowledge. Recognizing and valuing the cultural knowledge that students bring to the classroom creates concrete conditions for the appropriation of academic knowledge by enabling meaningful connections with the content being studied (Xavier & Flor, 2015). Thus, the school setting becomes a privileged space for the exchange of experiences and knowledge, fostering the development of civic and responsible attitudes toward environmental issues.

The integration of environmental education practices into the local community where the school is located is a central aspect of developing transformative approaches, as it allows the educational process to be grounded in local realities, valuing local culture, economy, and traditional knowledge (Sauvé, 1996). By starting from the students' lived environment, the exploration of environmental issues becomes more meaningful and engaging. In Brazil, this perspective has been evident in initiatives developed with indigenous peoples and riverine communities, as highlighted by Silva's (2020) studies in the Amazon.

The inclusion of the EASC curriculum component within the Abaetetuba municipal school system reflects an effort to integrate social, environmental, and climate dimensions in dialogue with the realities of the Amazon. This component aims to address socio-environmental issues, such as biodiversity loss, climate change, and sustainability challenges (Abaetetuba, 2024). However, in addition to the need to incorporate climate environmental education into the formal elementary school curriculum, it is essential to make financial investments in the development of teaching materials on the subject and in teacher training, considering that such investments must be ongoing to foster the country's educational development.

Given this, it is worth asking whether this curricular component, as outlined in the framework, breaks with the fragmented disciplinary approach or whether it risks remaining merely theoretical. As critics of the curriculum point out (Apple, 1996; Moreira & Silva, 2009; Sacristán, 2000), the mere inclusion of topics does not guarantee their implementation; rather, a training process is necessary to enable teachers to understand socio-environmental and climate complexity through a contextualized and dialogic approach.

The debate on climate change is of great importance in today's world, given its alarming and, in many respects, irreversible nature. In this context, education serves as a fundamental tool for fostering students' understanding and awareness of the climate crisis, encouraging critical and responsible engagement. Moreira and Silva (2009) emphasize that, when designing a curriculum intended to be effective in the teaching and learning process, it is essential to consider certain factors. After all, it would make no sense to select content without taking into account the students for whom it is intended, the current state of scientific knowledge, and the reality in which they are embedded.

After all, as Fuertes et al. (2020) emphasize, climate environmental education guides the development of various teaching strategies aimed at fostering the understanding, awareness, and skills necessary to address climate change at both the local and global levels. Thus, integrating climate change into the curriculum requires an approach that goes beyond simply

incorporating the topic, involving the integration of concepts, attitudes, values, and skills that promote a critical understanding of the relationships between society and the environment.

FINAL CONSIDERATIONS

The DCMA analysis highlights significant gaps in the approach to climate change and in the recognition of traditional communities. The explicit absence of climate-related topics undermines the development of critical thinking regarding the socio-environmental crisis, while the superficial inclusion of traditional communities in the curriculum limits the recognition of their knowledge and ways of life, which are fundamental to addressing climate change.

Although the DCMA recognizes the importance of a context-based curriculum and environmental education, its implementation faces challenges, such as the fragmentation of knowledge and the difficulty of establishing an interdisciplinary and cross-cutting approach. Furthermore, content related to environmental and climate education is not treated in a complementary manner and is poorly integrated with community experiences.

The inclusion of the EASC curriculum component in the curriculum of Abaetetuba's municipal schools represented a significant step forward, while highlighting the role of environmental education in raising awareness and encouraging actions aimed at addressing the climate and environmental crisis. However, it is understood that the disciplinary nature in which it was organized may limit the possibility of developing integrated, continuous, and permanent practices within the school environment across different curricular components.

This issue represents one of the main challenges to the development of a cross-curricular approach that is truly meaningful for students. Thus, simply including these topics does not guarantee their effective implementation; rather, an educational process is needed that enables teachers to understand socio-environmental and climate complexity through a contextualized and dialogic approach.

When linking the thematic unit on Climate Change to the reality of the Amazon, it is essential to recognize that its impacts do not manifest uniformly, but affect traditional populations, who depend directly on natural resources for their survival, more intensely. In this context, the implementation of climate environmental education in the curriculum requires valuing the knowledge, practices, ethical values, and historical strategies for coexisting with the environment in these communities, elements that are fundamental to fostering critical, responsible individuals who are aware of their socio-environmental context. However, despite

recognition of the topic's relevance, there is a lack of clear and effective strategies for its implementation in schools, highlighting the need for curriculum policies that are more integrated, contextualized, and committed to the reality of Amazonian territories.

Finally, the limitations of this study, such as the absence of interviews with teachers and students, point to the need for future qualitative research that allows for participant observation and the consideration of experiential accounts as a means of deepening the analysis. Furthermore, there is a need to broaden the analysis by incorporating other curricular components and educational stages that also address climate and environmental issues.

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