

**ENVIRONMENTAL EDUCATION, STUDENT PROTAGONISM AND
COOPERATION: A PROPOSAL FOR CREATING AN ECO-SCHOOL**

**EDUCAÇÃO AMBIENTAL, PROTAGONISMO ESTUDANTIL E COOPERAÇÃO:
PROPOSTA DE CRIAÇÃO DE UMA ECO-ESCOLA**

**EDUCACIÓN AMBIENTAL, LIDERAZGO ESTUDIANTIL Y COOPERACIÓN:
UNA PROPUESTA PARA LA CREACIÓN DE UNA ECOESCUELA**

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ABSTRACT

This article discusses environmental education from a critical perspective, linked to student protagonism and cooperation, and proposes the creation of an eco-school as a pedagogical and political strategy for Brazilian basic education. Based on theoretical references in environmental education, whole-child education, cooperativism and education for sustainable development, it analyzes the potential of school as a space for the formation of ecological, critical and supportive subjects, capable of ethically and responsibly intervening in the socio-environmental reality. The article advocates the importance of interdisciplinary and participatory projects, implemented through science clubs and cooperative practices, articulated with the principles of the Eco-Schools Programme, as pathways to build a culture of sustainability in everyday school life. Finally, it presents the expected results and the possible formative, institutional and community impacts of implementing an eco-school, with emphasis on the development of autonomy, student authorship and environmental citizenship.

Keywords: Environmental Education. Student Protagonism. Cooperativism. Eco-School. Whole-Child Education.

RESUMO

Este artigo discute a educação ambiental em sua perspectiva crítica articulada ao protagonismo estudantil e à cooperação, propondo a criação de uma eco-escola como estratégia pedagógica e política para o contexto da educação básica brasileira. A partir de referenciais teóricos da educação ambiental, da educação integral, do cooperativismo e da educação para o desenvolvimento sustentável, analisa-se o potencial da escola como espaço formador de sujeitos ecológicos, críticos e solidários, capazes de intervir na realidade socioambiental de maneira ética e responsável. Defende-se a importância de projetos interdisciplinares e participativos, materializados em clubes de ciências e em práticas cooperativas, articulados aos princípios do Programa Eco-Escolas, como caminhos para a construção de uma cultura de sustentabilidade no cotidiano escolar. Por fim, apresentam-se os resultados esperados e os possíveis impactos formativos, institucionais e comunitários

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da implementação de uma eco-escola, com ênfase no desenvolvimento da autonomia, da autoria discente e da cidadania ambiental.

Palavras-chave: Educação Ambiental. Protagonismo Estudantil. Cooperativismo. Eco-Escola. Educação Integral.

RESUMEN

Este artículo aborda la educación ambiental desde una perspectiva crítica, articulada con el protagonismo estudiantil y la cooperación, proponiendo la creación de una ecoescuela como estrategia pedagógica y política para el contexto de la educación básica brasileña. Con base en marcos teóricos de la educación ambiental, la educación integral, el cooperativismo y la educación para el desarrollo sostenible, analiza el potencial de la escuela como espacio para la formación de sujetos ecológicos, críticos y solidarios, capaces de intervenir en la realidad socioambiental de forma ética y responsable. Defiende la importancia de los proyectos interdisciplinarios y participativos, materializados en clubes de ciencias y prácticas cooperativas, articulados con los principios del Programa Ecoescuelas, como vías para la construcción de una cultura de sostenibilidad en la vida escolar cotidiana. Finalmente, presenta los resultados esperados y los posibles impactos formativos, institucionales y comunitarios de la implementación de una ecoescuela, con énfasis en el desarrollo de la autonomía, la autoría estudiantil y la ciudadanía ambiental.

Palabras clave: Educación Ambiental. Protagonismo Estudiantil. Cooperativismo. Ecoescuela. Educación Integral.

1 INTRODUCTION

The intensification of the socio-environmental crisis in recent decades has provoked profound questions about the social function of the school and about the ways of forming subjects capable of critically understanding the relations between society and nature, overcoming naturalizing and reductionist views that restrict environmental education to specific practices of sensitization or recycling of waste, without questioning the social structures that produce inequalities and degrade the environment. From this perspective, it is essential to conceive environmental education as a political and ethical process that challenges the daily school life and calls on students, educators and the community to rethink habits, values and forms of collective organization, in the horizon of a social transformation guided by socio-environmental justice. (Guimarães, 2004)

At the same time, the Brazilian educational scenario is marked by historical challenges, such as curricular fragmentation, inequalities of access and permanence, the precariousness of teaching work, and the difficulty of consolidating pedagogical practices that recognize students as subjects of rights and producers of knowledge, which requires proposals that articulate integral education, student participation, and commitment to the territory. In the face of these challenges, the discussion about student protagonism gains centrality, understood as the possibility for students to take an active role in identifying problems, making decisions and building solutions, especially when it comes to socio-environmental issues that cross their local realities. (Moll, 2004)

In this context, the proposal to create an eco-school seeks to articulate critical environmental education, student protagonism and cooperation in an institutional pedagogical project that permeates the curriculum, management and daily practices, mobilizing the school community around shared actions of care for life and the environment. The eco-school is no longer just a physical space and becomes a political-pedagogical project that values dialogue, investigation, student authorship and cooperative practices, inserting the school in local and global networks of education for sustainable development, and constituting itself as a strategy for ecological and citizenship training in the Brazilian context. (UNESCO, 2012)

2 THEORETICAL FOUNDATION

2.1 CONCEPTS OF CRITICAL ENVIRONMENTAL EDUCATION

Critical environmental education understands the environment as a result of the historical and social relations between human beings and nature, refusing naturalistic views that treat environmental problems as mere ecological imbalances and emphasizing the need to analyze the economic, political, and cultural structures that produce inequalities and exclusions. This perspective values dialogue, problematization, and a critical reading of reality, inviting students and educators to investigate the root causes of environmental degradation, as well as the power relations that cross access to natural resources, so that they can build collective and emancipatory responses. (Carvalho, 2012)

When discussing the formation of the ecological subject, critical environmental education highlights that it is not only about transmitting information about ecosystems, natural cycles, or conservation techniques, but about favoring processes of subjectivation in which subjects recognize themselves as part of nature and co-responsible for its preservation, developing ethical sensitivity, empathy, and commitment to the common good. This ecological subject is the result of educational experiences that articulate affectivity, reflection and action, which presupposes pedagogical practices that dialogue with daily life and with the concrete problems of the territories in which the school is inserted. (Carvalho, 2012)

This approach also emphasizes the importance of understanding environmental education as a field in dispute, in which different societal projects confront each other, from conservative perspectives that seek to adapt individual behaviors without altering the social order, to transformative proposals that question development models based on the unlimited exploitation of resources and the commodification of life. Critical environmental education is aligned with this second horizon, in which the school is called to problematize hegemonic discourses and to open space for plural and counter-hegemonic readings of the environment. (Guimarães, 2004)

The educational practice inspired by critical environmental education requires participatory and dialogical methodologies, in which the investigation of socio-environmental problems is done collectively, articulating scientific knowledge, popular knowledge and experiences lived by students, favoring the shared construction of meanings about the environment. By privileging research as an educational principle, this perspective challenges the transmissive model of teaching and strengthens the idea that knowledge arises from

curiosity, doubt and confrontation between different points of view, which enhances student protagonism. (Carvalho, 2012)

Finally, critical environmental education seeks to overcome episodic practices, carried out on commemorative dates, to constitute itself as a structuring axis of the school's political-pedagogical project, permeating disciplines, spaces and formative times, which implies rethinking the curriculum and the forms of organization of school life in dialogue with the socio-environmental demands of the territory, reinforcing the inseparability between education, democracy and sustainability. (Guimarães, 2004)

2.2 INTEGRAL EDUCATION AND STUDENT PROTAGONISM

Integral education, understood as that which aims at the global development of subjects in their intellectual, physical, emotional, social, ethical and aesthetic dimensions, constitutes an important reference for thinking about eco-school proposals that articulate knowledge, times and formative spaces, breaking with the disciplinary fragmentation that still marks a good part of Brazilian schools. By recognizing that children, adolescents and young people learn inside and outside the classroom, in relationships with the community, with culture and with nature, integral education broadens the scope of pedagogical action and strengthens the idea of school as a hub for articulating diverse educational experiences. (Moll, 2009)

This perspective considers that student protagonism is not only a motivational strategy, but a political and pedagogical principle that affirms students as subjects of rights and knowledge, capable of making decisions, planning actions, managing projects and evaluating processes, which requires the school to create effective participation devices, such as assemblies, unions, science clubs and youth councils. among others. By assuming concrete responsibilities in environmental and social initiatives, students experience citizenship in a practical way and begin to recognize themselves as agents of transformation. (Moll, 2009)

The guidelines present in the National Common Curricular Base reinforce the centrality of integral education and student protagonism by defining general competencies linked to responsibility and care for the environment, argumentation, critical thinking and empathy, indicating that the school should promote experiences that articulate knowledge, values and attitudes in continuous and contextualized processes. In this sense, eco-school projects dialogue directly with the socio-emotional and cognitive competencies foreseen for basic

education, contributing to the construction of training paths consistent with national educational policies. (Brazil, 2017)

Student protagonism linked to integral education also supposes the revision of power relations within the school, questioning authoritarian and hierarchical practices and valuing dialogue, listening and co-responsibility between educators and students, which brings the eco-school proposal closer to critical pedagogies that defend processes of collective construction of knowledge, anchored in experience and in the problematization of concrete reality. Under these conditions, protagonism ceases to be an abstract discourse and materializes in shared practices of management and production of knowledge. (Freire, 2020)

By articulating integral education and student protagonism in projects aimed at sustainability, the school creates conditions for students to relate their life trajectories to socio-environmental challenges, developing research, community intervention, art and communication projects that dialogue with the territory, strengthening identities, bonds and belongings, and contributing to a broader understanding of learning as a process lived with joy, creativity and meaning. (Alves, 2005).

2.3 COOPERATIVISM, WORK AND CITIZENSHIP AT SCHOOL

Cooperativism, understood as a form of collective organization based on mutual aid, democratic management and equitable distribution of results, offers important contributions to thinking of the school as a space for citizenship formation, insofar as it values the active participation of all in decision-making and in the conduct of projects, stimulating shared responsibility and commitment to the common good. When transposed to the school context, cooperativism enables the creation of experiences in which students organize themselves to plan, execute and evaluate socio-environmental actions, learning to work in groups and negotiate interests in solidarity. (Robaina, 2018)

In eco-school initiatives, cooperativism can be expressed in the creation of groups responsible for different fronts, such as school gardens, waste reduction campaigns, environmental education actions in the community, mapping of socio-environmental problems in the surroundings and communication projects for sustainability, among others, strengthening the idea that each student contributes with their skills to a common project. This dynamic fosters the learning of important social skills, such as knowing how to listen, argue, respect differences and build consensus, which are essential for citizenship. (Robaina, 2018)

The link between cooperativism, work and citizenship in school is also made explicit when the projects involve partnerships with community organizations, neighborhood associations and local cooperatives, which broadens the educational horizon of students and connects them to concrete experiences of solidarity economy and collective organization of work in their territories. This approach strengthens the perception that the school is not isolated, but is part of a network of actors who can act together in the promotion of rights and in the defense of decent living conditions. (Moll, 2004)

By incorporating cooperative principles into pedagogical and school management practices, the eco-school contributes to the construction of an institutional culture in which decisions are discussed, responsibilities are shared, and conflicts are treated as learning opportunities, which reinforces the ethical and political dimension of education and favors the development of an active citizenship committed to social transformation. (Robaina, 2018)

2.4 ECO-SCHOOLS PROGRAM AND ITS PRINCIPLES

At the international level, the proposals for sustainable schools and programs such as eco-schools reinforce the importance of integrated approaches that articulate curriculum, management and infrastructure from the perspective of sustainability, assuming that the school environment is a privileged space to promote changes in values and practices towards fairer and more balanced societies. These programs emphasize the participation of students in all stages, from diagnosis to evaluation, as well as community involvement, constituting relevant references for the construction of eco-schools in the Brazilian context. (UNESCO, 2012)

The central principles of an eco-school include the integration of environmental issues in all areas of knowledge, democratic and participatory management, the adoption of sustainable practices in the use of resources, such as water and energy, and the promotion of awareness-raising and mobilization actions in the community, always articulated with critical reflection on development models and socio-environmental inequalities. In this way, the eco-school becomes a living laboratory in which new ways of organizing collective life are experimented, aligned with values of solidarity and intergenerational responsibility. (Carvalho, 2012)

Another central characteristic of these programs is the emphasis on project-based learning and the investigation of the territory, which implies that students actively participate in the identification of problems, the formulation of hypotheses, the search for information and

the construction of intervention proposals, breaking with the logic of passivity and memorization that still marks many school practices. The eco-school, therefore, favors the development of investigative, communicative and collaborative skills, fundamental for the formation of critical and creative subjects. (UFRGS, 2020)

The construction of an eco-school also presupposes continuous training processes for educators, managers and other education professionals, so that they can resignify their practices, deepen knowledge about environmental education and sustainable development and learn to work in an interdisciplinary way, in teams that plan collectively and dialogue with the community. These training processes strengthen the school's identity as an institution committed to sustainability and the transformation of the local reality. (UFRGS, 2020)

2.5 SCIENCE CLUBS AS SPACES FOR RESEARCH AND STUDENT AUTHORSHIP

Science clubs, when conceived as spaces for investigation and student authorship, constitute privileged devices for the promotion of critical environmental education and student protagonism, insofar as they allow students to formulate questions, develop hypotheses, plan experiments, collect data and disseminate results, in an environment that values curiosity, creativity and collaborative work. In these spaces, science is presented as a situated and historical social practice, and not as a set of ready-made truths, which favors a more critical and reflective relationship with scientific knowledge. (UFRGS, 2020)

By articulating science clubs to the eco-school proposal, the school can develop projects that involve the monitoring of water quality, the study of local biodiversity, the monitoring of energy consumption indicators, the analysis of solid waste produced in the institution, among other initiatives that bring the curriculum closer to the reality experienced by students, strengthening the understanding that scientific research can contribute directly to the solution of problems of the everyday. This approximation broadens the meaning of learning and reinforces the link between science and citizenship. (Carvalho, 2012)

Science clubs also function as spaces for expression and authorship, in which students produce scientific dissemination materials, such as panels, models, videos, podcasts and exhibitions, which can be shared with the school community and the surroundings, contributing to the democratization of access to knowledge and to the construction of a culture of valuing science. By assuming the authorship of projects and products, students strengthen their self-esteem and their awareness that they can influence the public debate on socio-environmental issues. (Alves, 2005)

These research spaces can also establish partnerships with higher education institutions, museums and science centers, expanding the cultural and scientific repertoire of students and favoring contact with different areas of research, which can influence future professional choices and awaken scientific vocations in contexts where access to these experiences is often limited. Such partnerships reinforce the idea that the eco-school is also a space for scientific initiation and training for citizenship. (UFRGS, 2020)

Finally, by promoting science clubs that dialogue with critical environmental education, the school contributes to the formation of subjects who not only understand scientific concepts, but are also capable of discussing ethical, political and social implications of science and technology, developing a responsible posture in the face of innovations and environmental impacts associated with different development models. which is fundamental for the construction of an active environmental citizenship. (Carvalho, 2012)

3 EDUCATIONAL CONTEXT AND JUSTIFICATION OF THE PROPOSAL

3.1 SOCIO-ENVIRONMENTAL CHALLENGES IN THE BRAZILIAN SCHOOL CONTEXT

The Brazilian school context is crossed by strong socioeconomic inequalities that are expressed in precarious infrastructure conditions, lack of access to adequate basic sanitation, food insecurity and absence of green areas, among other problems that directly affect the daily lives of students and educators and highlight the connections between social vulnerability and environmental degradation. In many communities, the school is one of the few public facilities present, which places it in a strategic position to promote actions that articulate education, health, environment and human rights. (Moll, 2004)

In addition, the presence of solid waste accumulated in the surroundings of schools, the lack of adequate water and energy management, and the lack of spaces for coexistence and contact with nature reveal that the school environment itself often reproduces unsustainable practices, which hinders the formation of subjects committed to sustainability, since the pedagogical discourse does not always find support in the concrete reality experienced by students. Facing this contradiction is a central challenge for any environmental education proposal. (Guimarães, 2004)

At the curricular level, there are still difficulties in integrating the socio-environmental theme in a transversal and continuous way, as it is often treated in a fragmented way, limited to certain curricular components, such as Science or Geography, or even restricted to commemorative dates, which prevents students from understanding the complexity of the

relationships between environment, economy, politics and culture. This fragmentation compromises the formation of a systemic view of reality and hinders the construction of collective projects of socio-environmental intervention. (Brazil, 2017)

Another important challenge concerns the initial and continuing training of educators, which does not always consistently contemplate the contributions of critical environmental education and the participatory methodologies necessary to work with complex and controversial issues, such as climate change, conflicts over land and water, and environmental injustice. Without adequate training support, many teachers feel insecure to address such topics, which limits the school's transformative potential. (UFRGS, 2020)

These challenges are accentuated in contexts marked by urban violence and by processes of stigmatization of peripheral communities, in which young people often experience discrimination and exclusion that affect their relationship with school and with the future, requiring pedagogical proposals that associate care, welcoming, and affirmation of rights with critical reflection on socio-environmental living conditions. contributing to the construction of horizons of hope and social participation. (Freire, 2020)

3.2 POTENTIAL OF THE SCHOOL AS A SPACE FOR ECOLOGICAL TRAINING

Despite these challenges, the school has great potential as a space for ecological education, as it brings together children, adolescents, young people and adults on a daily basis around educational practices that can be guided by values of care, solidarity and responsibility for life. By articulating scientific knowledge and popular knowledge, the school can favor the construction of critical understandings about socio-environmental problems and stimulate engagement in collective actions for their transformation, becoming a reference for the community in environmental education processes. (Carvalho, 2012)

The National Common Curriculum Base recognizes this potential by indicating that basic education should promote the development of skills related to responsibility and care for the environment, data-based argumentation, empathy and cooperation, which opens up possibilities for schools to organize their pedagogical projects around generative themes linked to sustainability and social justice. In this horizon, the eco-school constitutes a possible realization of these guidelines, by materializing in the institutional daily life the competencies provided for in national policies. (Brazil, 2017)

By proposing the creation of an eco-school, it is recognized that the school environment, with its courtyards, classrooms, canteens, bathrooms and external areas, can

be re-signified as a laboratory of environmental education, in which practices of waste management, rational use of water and energy, cultivation of vegetable gardens and gardens, healthy eating and respectful coexistence are experimented with. articulating material and symbolic aspects in the construction of an institutional culture guided by sustainability. In this way, each space in the school becomes an opportunity for ecological learning. (Carvalho, 2012)

This formative potential is also expressed in the possibility of the school being inserted in education programs and networks for sustainable development at the local, national and international levels, which favors the exchange of experiences, the circulation of pedagogical materials and participation in joint campaigns and projects, expanding the repertoire of practices and strengthening the school's identity as an institution committed to sustainability and global citizenship. (UNESCO, 2012)

3.3 NEED FOR INTERDISCIPLINARY AND PARTICIPATORY PROJECTS

The complexity of socio-environmental problems requires interdisciplinary approaches that break with the compartmentalization of content and allow students to articulate knowledge from different areas, such as Science, Geography, History, Portuguese Language, Mathematics and Arts, among others, in the analysis of concrete situations. Interdisciplinary projects allow environmental issues to be treated in their historical, social, economic, cultural and ethical dimensions, contributing to the formation of a broader and more critical view of reality. (Guimarães, 2004)

The national curriculum guidelines reinforce the importance of pedagogical practices that promote the integration of curricular components and the construction of study and intervention projects that start from problems relevant to the school community, articulating research, group work and production of records, which is in line with the eco-school perspective, which presupposes the elaboration of collectively constructed action plans, involving different areas of knowledge. In this process, student protagonism is a central element. (Brazil, 2017)

The effective participation of students in the conception, planning and evaluation of interdisciplinary projects is a fundamental condition for these projects not to be reduced to specific activities, but to become formative processes in which the subjects recognize themselves as authors of their learning trajectories, assuming responsibilities and perceiving

the impact of their actions in the school and community environment. This participation strengthens bonds of belonging and commitment to the school. (Moll, 2009)

The construction of interdisciplinary and participatory projects aimed at sustainability also demands processes of continuing education of educators, which support them in reflecting on their practices, in the preparation of materials and in the experimentation of active methodologies, such as projects, workshops, conversation circles and field investigations, among others, which contributes to the eco-school not being just a proposal for students, but also a movement for teacher professional development. (UFRGS, 2020)

3.4 ECO-SCHOOL AS A PEDAGOGICAL AND POLITICAL STRATEGY

The eco-school can be understood simultaneously as a pedagogical and political strategy, because, at the same time that it proposes active, interdisciplinary and participatory methodologies for working with socio-environmental themes, it also affirms a political position in favor of environmental justice, democracy and the defense of rights, confronting visions that restrict education to technical training or to mere preparation for the labor market. In this sense, the eco-school is part of broader projects for the construction of sustainable and solidary societies. (Guimarães, 2004)

As a pedagogical strategy, the eco-school values research, problematization and experimentation, favoring the construction of meaningful learning that starts from the students' reality and returns to this reality in the form of transformative actions, such as campaigns, interventions in the physical space, production of communication materials and articulation with social movements, among other initiatives. This dynamic breaks with the dichotomy between theory and practice and strengthens the idea that learning is also intervening in the world. (Freire, 2020)

On the political level, the eco-school assumes that environmental education is not neutral, as it involves a dispute of values, interests and projects for the future, and therefore seeks to explain and discuss with students and the community the contradictions present in development models that produce wealth for a few and degrade the environment, while at the same time affirming the possibility of building alternatives based on cooperation, in the solidarity economy and in the democratic management of the commons. This posture gives the school an active role in the public debate. (Robaina, 2018)

The eco-school also presents itself as a strategy for the concrete implementation of educational policies that provide for the transversality of environmental education and integral

training, by organizing the political-pedagogical project around axes of sustainability and participation, building annual action plans, defining goals and indicators and establishing forms of monitoring and evaluation, in order to ensure continuity and coherence of actions, avoiding being limited to isolated initiatives. (Brazil, 2017)

Finally, by constituting itself as an eco-school, the institution strengthens its identity before the community and networks of partners, affirming itself as a space that not only discusses theory, but also carries out concrete practices of care for the environment and the construction of fairer social relations, which contributes to the formation of ecological, critical and supportive subjects and to the consolidation of a culture of sustainability that can radiate beyond the school walls. (Carvalho, 2012)

4 EXPECTED OUTCOMES AND POTENTIAL IMPACTS

4.1 DEVELOPMENT OF STUDENT PROTAGONISM

One of the main results expected from the creation of an eco-school is the strengthening of student protagonism, expressed in the students' ability to identify problems, propose solutions, organize actions and evaluate processes, assuming an active role in the construction of the pedagogical project and in the management of school spaces. By participating in assemblies, science clubs, thematic commissions and working groups, students exercise decision-making, dialogue and collective responsibility. (Moll, 2009)

Student protagonism is also manifested in the authorship of research and socio-environmental intervention projects, in which students define topics of interest, elaborate questions, seek information from different sources, build records and disseminate results at fairs, exhibitions and events, which contributes to the development of scientific, communicative and social skills and to the recognition of their voice in the public space. This authorship reinforces self-esteem and the feeling of belonging to the school. (UFRGS, 2020)

The active participation of students in decisions related to the organization of physical space, such as the creation of vegetable gardens, gardens, murals and living environments, also favors protagonism, as they imply choices about priorities, use of resources and forms of coexistence, which requires negotiation and consensus-building. When they see their ideas materialized in the school environment, students realize that their action has a real impact, which encourages engagement in new initiatives. (Brazil, 2017)

This process can contribute to the resignification of the students' relationship with the school, especially in contexts in which they usually experience experiences of exclusion and

devaluation, since the protagonism recognizes their knowledge, their cultures and their forms of expression as legitimate, opening space for creativity, affectivity and humor. elements that make learning more meaningful and pleasurable, bringing the school closer to its life projects. (Alves, 2005)

4.2 STRENGTHENING THE CULTURE OF SUSTAINABILITY IN THE SCHOOL

In this regard, it is expected to strengthen a culture of sustainability in the school, understood as a set of values, norms, practices and meanings that guide the relationships between people and with the environment towards care, responsibility and intergenerational solidarity. This culture is expressed in everyday decisions, such as the rational use of water and energy, waste reduction, healthy eating, respect for biodiversity, and the appreciation of green spaces, among other dimensions that can be worked on pedagogically. (Carvalho, 2012)

The construction of this culture requires that the theme of sustainability is not limited to isolated projects, but is incorporated into the political-pedagogical project, the rules of coexistence and the management of the school, including purchasing criteria, infrastructure planning and organization of times and spaces, so that students, educators and other professionals perceive coherence between the discourse and the institutional practice. The eco-school, in this sense, acts as a visible reference of commitment to sustainability. (Guimarães, 2004)

Practices such as the implementation of selective collection systems, the creation of pedagogical gardens, the planting of trees, the organization of campaigns to reduce food waste and the care with the cleanliness of collective spaces contribute to the consolidation of sustainable habits, especially when accompanied by processes of critical reflection on the structural causes of environmental degradation and on inequalities in access to natural resources. avoiding moralizing and individualizing approaches. (UFRGS, 2020)

The culture of sustainability is also related to the way the school deals with conflicts and differences, valuing dialogue, mediation and the search for collective solutions, which can materialize in restorative justice projects, mediators' councils and listening spaces, among other devices that contribute to the construction of more welcoming and safe environments. fundamental for learning and participation. Thus, sustainability is understood in its social and relational dimension. (Moll, 2009)

By consolidating a culture of sustainability, the eco-school contributes to the formation of the ecological subject, who integrates knowledge, values and practices in their relationship with the world, recognizing the interdependence between human beings and nature and taking responsibility for their individual and collective choices, which can be reflected in changes in behavior beyond the school space, reaching families and communities. (Carvalho, 2012)

4.3 INTEGRATION BETWEEN SCHOOL, FAMILIES AND COMMUNITY

The implementation of an eco-school has the potential to deepen the integration between school, families and the community, to the extent that socio-environmental projects require the participation of different social actors and can be organized in partnership with residents' associations, health units, universities, public agencies and civil society organizations. This integration expands the reach of educational actions and favors the construction of support networks around sustainability. (UFRGS, 2020)

Activities such as joint efforts to care for the school space, science fairs, environmental education workshops open to the community, waste collection campaigns, conversation circles on socio-environmental issues and visits to public facilities can involve family members and residents of the surrounding area in shared learning processes, in which everyone recognizes themselves as subjects of knowledge and rights. which contributes to the democratization of the school and to the strengthening of the social fabric. (Moll, 2004)

The participation of families in management instances, such as school councils and extended meetings, can also be qualified when the theme of eco-school is on the agenda, as debates on the use of resources, investment priorities and the organization of environmental projects raise discussions about social justice, rights and duties, enabling the collective construction of decisions and co-responsibility for the direction of the school. This dimension strengthens active citizenship. (Robaina, 2018)

The integration between school and community is further enhanced when students become communicators of the eco-school's actions, producing informative materials, community radio programs, blogs, posters and public presentations that disseminate knowledge and invite participation, which expands the circulation of ideas about sustainability and reinforces the role of the school as a center of cultural and scientific irradiation in the territory. This communication strengthens bonds of trust and mutual recognition. (UFRGS, 2020)

By favoring this integration, the eco-school contributes to environmental education being understood as a shared responsibility and not just as a school task, which can generate lasting impacts on the organization of community life and on the way residents relate to public spaces, natural resources and environmental policies, consolidating a more participatory and sustainable perspective of local development. (UNESCO, 2012)

4.4 CONTRIBUTIONS TO THE SCIENTIFIC AND CIVIC EDUCATION OF STUDENTS

The eco-school offers favorable conditions for the scientific training of students, by promoting research projects that articulate observation, experimentation, recording and analysis of data on concrete socio-environmental phenomena, such as water quality, diversity of species in green areas, waste generation and energy consumption, among others, strengthening the understanding of science as a process of collective construction of knowledge. This experience contributes to the development of critical thinking and the ability to interpret scientific information present in everyday life. (UFRGS, 2020)

At the same time, the eco-school favors citizenship education, as it places students in situations that require ethical and political choices, such as the definition of priorities in projects, the discussion of environmental impacts of different forms of production and consumption, and the analysis of public policies related to the environment, stimulating reflection on rights, responsibilities and participation in decision-making spaces. Thus, science and citizenship are worked on in an articulated way. (Guimarães, 2004)

The articulation between scientific and citizen education is expressed, for example, when students use data collected in investigations to develop proposals aimed at public managers or to mobilize the community in specific actions, such as afforestation campaigns, care for local rivers or improvement of urban cleaning services, among other initiatives that demonstrate the power of school research as an instrument of social intervention. In this context, scientific knowledge gains political meaning. (Freire, 2020)

The eco-school also contributes to expanding students' access to scientific initiation experiences, whether through science clubs, participation in fairs and exhibitions, or partnerships with higher education institutions, which can influence future academic trajectories and stimulate interest in scientific careers, especially among young people from groups historically excluded from these spaces. contributing to democratizing the scientific field. This democratization is in line with the perspective of integral education and equity. (Moll, 2009)

Finally, by articulating scientific and citizen education in a perspective of critical environmental education, the eco-school collaborates in the construction of ecological subjects capable of understanding the complexity of environmental issues and of acting responsibly and in solidarity in different spaces of social life, which becomes particularly relevant in a context of global socio-environmental crisis and the need to transition to fairer and more sustainable development models. (Carvalho, 2012)

5 CONCLUSION

The proposal to create an eco-school, articulating critical environmental education, integral education, student protagonism and cooperation, proved to be a powerful strategy to face the socio-environmental challenges present in the Brazilian school context, while contributing to resignify the role of the school as a space for the formation of ecological, critical and solidary subjects. By integrating curriculum, management, and daily practices around sustainability, the eco-school strengthens an institutional culture that values care for life and collective responsibility, going beyond one-off and fragmented actions.

The theoretical foundations discussed, anchored in authors who reflect on environmental education, integral education, cooperativism and education for sustainable development, indicate that the formation of ecological subjects requires pedagogical processes that articulate critical reflection, investigation, participation and cooperation, in dialogue with the experiences and territories of the students. In this sense, the eco-school presents itself as a privileged space to materialize principles of environmental justice, democracy and solidarity, materializing guidelines present in Brazilian educational policies.

The expected results and potential impacts analyzed indicate that the eco-school can contribute significantly to the development of student protagonism, to the strengthening of the culture of sustainability, to the integration between school and community and to the scientific and civic training of students, broadening horizons of hope and social participation in contexts often marked by inequalities and exclusions. In the end, it is reaffirmed that the construction of eco-schools requires political commitment, investment in training and willingness to experiment with new ways of organizing school life, recognizing education as a practice of freedom and reinvention of the world.

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