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RESEARCH ARTICLE

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## MAPPING ENVIRONMENTAL EDUCATION IN PUBLIC ELEMENTARY SCHOOLS

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### ABSTRACT

The objective of this research was to map, identify and understand the proposals implemented on the theme of environmental education, in Elementary Schools in the municipal public network of Macapá, state of Amapá, Brazil. The research, of a qualitative approach, was developed from a literature review and data search in theses and dissertations, produced in the period from 2010 to 2020, located in the Digital Library of Theses and Dissertations of the Brazilian Institute of Information in Science and Technology (IBCT). The study presented contributions and experiences of environmental education in public schools and education policies in different cities, as well as revealed subsidies and proposals for the implementation of environmental education, in Public Elementary Schools in the city of Macapá.

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## INTRODUCTION

Environmental education is intertwined with educational practice in formal and non-formal education. The mandatory nature of environmental education in Brazilian public schools was guaranteed by Law no. 9,795, of April 27, 1999 and must be developed as an integrated, continuous and permanent pedagogical practice. Resolution no. 2, of June 15, 2012, established the National Curriculum Guidelines for Environmental Education, which reiterates environmental education as a dimension of education that must occur at all levels of education and serves as an instrument for interdisciplinary work with environmental issues and the promotion of a fairer and more sustainable society. According to Gadotti (2008), environmental education should encourage solidarity, equality and respect for human rights, making use of democratic strategies and interaction between cultures. It is a life choice for a more harmonious, healthy and balanced relationship with the environment. The debate on environmental education thus gains greater visibility, with the school as a mediating, problematizing and important element for this dialogue, as it is a democratic space that favors the participation of students and educational communities in the process, awareness of the need for balance with nature, environmental preservation and changing cultural habits in the use of natural resources.

Thus, school becomes a place that enables the construction of technical-scientific knowledge, based on popular understandings and experiences of students, in addition to forming skills and values for life. As a coping strategy, research is needed in the area and in particular on the theme of environmental education and its insertion as an interdisciplinary curricular component in public schools. Thus, the objective of this research was to map, identify and understand the proposals implemented on the theme of environmental education, in Public Elementary Schools in the municipal network of Macapá, state of Amapá, Brazil.

## METHODOLOGY

The research was developed with a qualitative approach and through a bibliographic study. The bibliographical research was developed from an exploratory study with literature review, in theses and dissertations, produced in the period from 2010 to 2020, which were located in the Digital Library of Theses and Dissertations of the Brazilian Institute of Information in Science and Technology (IBCT), on proposals and practices for the insertion of environmental education in public schools in the city of Macapá. According to Chizzotti (2006), bibliographical research recognizes the knowledge accumulated in the history of humanity and invests in an interest in

deepening analyzes and making new discoveries in favor of human life (p. 19). The author highlights the importance of bibliographic research for knowledge and new discoveries in favor of life preservation, of the dignity of human life. As stated by Severino (2007), bibliographic research is carried out from available records, resulting from previous research, in printed documents, such as books, articles, theses, etc. Data from theoretical categories already worked on by other researchers and duly registered are used. The texts become sources for the themes to be researched. The researcher works based on contributions from the authors of the analytical studies contained in the texts. (p. 122). The use of bibliographical research required careful reading and analysis by the researcher who explored the different sources as a way to deepen and broaden the study topic. The analysis of the dissertations was carried out as follows: (a) institutional identification of production; (b) systematization of study objects; (c) identification and analysis of the abstract and introduction of the productions; (d) identification and analysis of the conclusions/recommendations indicated in the productions; (e) other records of evidence considered important.

## RESULTS AND DISCUSSION

Initially, a search was carried out in the database of the Brazilian Digital Library of Theses and Dissertations of *IBCT*, with the keywords in Portuguese: 'Educação Ambiental' (Environmental Education); 'Ensino Fundamental I' (Elementary School), 'Macapá', 'Amapá'. We found that there were no studies on the theme. We carried out a new search with the following keywords: 'Educação Ambiental' (Environmental Education); 'Ensino Fundamental I' (Elementary School).

Municipal de Educação' (Municipal Education Department), but no results were found. However, with the theme 'Educação Ambiental' (Environmental Education) and 'Políticas Públicas nas escolas' (Public Policies in schools), two Master's dissertations were identified. Then, more specifically, we searched the themes 'Educação Ambiental' (Environmental Education) and 'Políticas Públicas' (Public Policies). We found 31 Master's dissertations and 19 Doctoral theses. Among the analyzed studies, we selected seven pieces of research developed between 2010 and 2020, presented in Table 1.

M. M. C. dos Santos (2015) investigated the experiences of environmental education in public schools and the educational policies of the Municipal Department of Education in Santarém, state of Pará Brazil. The research occurred through a diagnostic study carried out from the 2000s onwards and pointed out dissatisfaction with regard to the development of environmental education, as well as for living in the reality of the Amazon, which reflects an unparalleled beauty. Whether in the flora, fauna, rivers with black and crystalline water, the bird songs at dawn, cultural diversity, etc.; even so, the environmental and socio-environmental problems in this region are already quite visible (deforestation, pollution of streams, unemployment, slums, among others). M. M. C. dos Santos (2015) found the need to discuss environmental problems in different layers of society, especially in environments where public policy development and education take place. The research showed the effectiveness of the trajectory of public policies in the municipality of Santarém, regarding environmental education, from the 1990s to 2014, as well as the (mis)understanding of educators (managers/pedagogical coordinators/teachers) when alluding to public and pedagogical practices in schools (locus of study) about environmental education.

Table 1. Related Studies

Year	Title	Author	Mentor/University
2015	<i>As vivências de educação ambiental nas escolas públicas e as políticas educacionais da Secretaria Municipal de Educação em Santarém-Pará, Brasil</i> [Experiences on environmental education in public schools and education policies of the Municipal Department of Education in Santarém-Pará, Brazil]	Santos, Maria Mirtes Cortinas dos	Luís Enrique Aguiar Universidade Estadual de Campinas (UNICAMP) <a href="http://repositorio.unicamp.br/jspui/handle/REPOSIP/305039">http://repositorio.unicamp.br/jspui/handle/REPOSIP/305039</a>
2016	<i>Políticas Públicas de Educação ambiental: as escolas de ensino fundamental I do município de Rio Claro -SP como espaço de mediação</i> [Public Policies for Environmental Education: Elementary Schools in the city of Rio Claro -SP as a space for mediation]	Arnaldo, Maria Aparecida	Luiz Carlos Santana Universidade Estadual Paulista (UNESP) - Rio Claro-SP <a href="http://hdl.handle.net/11449/144476">http://hdl.handle.net/11449/144476</a>
2017	<i>Educação Ambiental e Políticas Públicas em Fernando de Noronha: a participação na construção de escolas e sociedades sustentáveis</i> [Environmental Education and Public Policies in Fernando de Noronha: participation in the construction of sustainable schools and societies]	Battaini, Vivian	Marcos Sorrentino Universidade de São Paulo (USP) <a href="http://www.teses.usp.br/teses/disponiveis/91/91131/tde-14032018-112322/">http://www.teses.usp.br/teses/disponiveis/91/91131/tde-14032018-112322/</a>
2018	<i>Trajatória Histórica da Disciplinarização da Educação Ambiental na Rede Municipal de Ensino de Ilha Solteira – SP</i> [Historical Trajectory of Disciplinary Environmental Education in the Municipal Teaching Network of Ilha Solteira – SP]	Queiroz, Thayline Vieira	Carolina Buso Dornfeld UNESP <a href="http://hdl.handle.net/11449/157228">http://hdl.handle.net/11449/157228</a>
2019	<i>Pedagogia de projetos: processos formativos na parceria entre a educação formal e não-formal</i> [Pedagogy of projects: formative processes in the partnership between formal and non-formal education]	Toledo, Mayra Almeida	Danielle Aparecida do Nascimento dos Santos Universidade do Oeste Paulista (UNOESTE) <a href="http://bdtd.unoeste.br:8080/jspui/handle/jspui/1265">http://bdtd.unoeste.br:8080/jspui/handle/jspui/1265</a>
2019	<i>Escolas Sustentáveis no Brasil: As COM-VIDAS- "Comissões de Meio Ambiente e Qualidade de vida" – como mobilizadoras da Participação da Comunidade local e de transformações socioambientais nas escolas</i> [Sustainable Schools in Brazil: 'COM-VIDAS' – "Environment and Quality of Life Commissions" – as mobilizing agents for the Participation of the local community and for socio-environmental changes in schools]	Santos, Jessica Maria dos	Ricardo Ribeiro UNESP <a href="http://hdl.handle.net/11449/182343">http://hdl.handle.net/11449/182343</a>
2020	<i>O meio ambiente no meio do mundo: o faz na Educação Infantil municipal em Macapá/ Amapá</i> [Environment in the middle of the world: the acting of a municipal Kindergarten in Macapá city/Amapá state]	Prazeres, Leticia Gardênia Carvalho	Denise Regina da Costa Aguiar Universidade Brasil <a href="https://www.universidadebrasil.edu.br/portal/curso.php?id_curso=159">https://www.universidadebrasil.edu.br/portal/curso.php?id_curso=159</a>

Eight pieces of research were found, from 2008 to 2019, with themes related to this study, developed in the Municipalities of Ilha Solteira, state of São Paulo (SP); Rio Claro-SP; São Paulo-SP; João Pessoa, state of Paraíba (PB); Maceió, state of Alagoas (AL); and Mossoró, state of Rio Grande do Norte (RN). After that, theses and dissertations were then searched in the same database with the keywords 'Educação Ambiental' (Environmental Education) and 'Secretaria

The main objective of the study was to investigate how the Municipal Department of Education, in its education policies, comply with Constitutional precepts and specific legislation that directs the National Policy for Environmental Education in Brazil. The data revealed that most educators do not have knowledge of the set of norms and policies that regulate national, state and local environmental education. The projects were developed with specific

environmental education activities, present mostly in the Pedagogical Master Plans, without the work with interdisciplinarity and transversality. The Municipal Department of Education developed environmental education policies with schools, in accordance with constitutional and legal precepts, but these actions were considered timid. It was cited as an example the school centers (*Escolas do Parque e da Floresta* [Schools of the Park and Forest]), which, even with the references of public policies for the practice of environmental education, interacted with the schools, only when requested; in addition, the Amazon Region is an exuberant natural environment, conducive to the practice of environmental education, among others. The Department pointed out that the development of environmental education in schools is necessary and urgent, as it can contribute to the conscious education of students and everyone in the school community about the environment. Arnaldo (2016) carried out an investigation in seven schools that attend Elementary School, in the Municipal Public Education Network of Rio Claro, located in the state of São Paulo. The objective of the research was to analyze the school as a space for mediation of public policies of environmental education and the processes by which this mediation occurs. In order to carry out the research, the author opted for a qualitative approach and for data collection she used questionnaires, interviews, observations, document analysis, using the triangulation of the data obtained. In the results, it was observed in the schools investigated ways of interacting with the community through the environmental theme, having the students as multipliers of knowledge about environmental issues. The author also noted the transversality, interdisciplinarity and work with projects in the development of environmental education. The research, which was developed from 2008 to 2015, presented reflections on environmental and social issues, found the implementation of environmental education as a public policy and the school as a space for problematization, mediator of actions carried out in social practice, with an emphasis on knowledge and issues related to environmental issues and socio-environmental problems and, in this way, enable awareness through changes of attitude.

Battaini(2017), in her research, presented, as an objective, the contribution to the improvement of public policies for environmental education committed to strengthening participation in schools and the construction of sustainable societies. The author analyzed the contributions of environmental education activities for the qualification of participation, learning of students and strengthening of the relationship between school and community. The research emphasized the contribution of the development of participatory processes fostered by environmental education activities in Fernando de Noronha, for the education of people committed to improving the socio-environmental conditions of their place and to planetary citizenship. The author evidenced elements that can contribute to the qualification processes of participation and support environmental education actions, projects, programs and public policies committed to the transition to sustainable societies. The author concluded the research by mapping the institutional, political and content conditions that interfere in the public policies of environmental education in Fernando de Noronha and presented suggestions of objectives, principles, actions and instruments for public policies for environmental education that strengthen the mutual commitment between school and other institutions of Fernando de Noronha, being able to subsidize other territories and municipalities, proposing the continuity of the research. Queiroz's study (2018) sought to answer the proposed research questions focusing on the actors, trajectories, historical and sociopolitical contexts involved in the elaboration of project policies that culminated in the implementation of environmental education in the municipality of Ilha Solteira, state of São Paulo, which started about eight years earlier. Therefore, it aimed to analyze the insertion of environmental education in Elementary Schools in the city, through a historical review of its implementation, seeking to understand the process of disciplining environmental education in the teaching network of IlhaSolteira-SP. The research was configured in a qualitative approach, involving a case study. The author used as a source of study written documents and interviews with the actors involved in the insertion of environmental education

in the municipality. Despite being incorporated into public policies since the 1970s, environmental education still suffers a lot of resistance in the school context, as it constitutes a complex space of social relationships and interactions, with different actors and interests, with frequent clashes, conflicts and disputes over power. The analysis of the insertion of environmental education in Elementary School, in the city, was carried out through a historical review of its implementation, although consolidated, the author evidenced the absence of strategies and collective action plans with the school community, which can contribute to the construction of a network of knowledge necessary to face the complexity that environmental education requires as an interdisciplinary proposal. Toledo (2019) investigated the Pedagogy of Projects, envisioned as the possibility of conceiving a learning culture based on student work to solve everyday or socio-environmental problems, with the support and encouragement of the teacher. The research presented as its main objective to analyze how the development of educational activities arising from a partnership between school and socio-environmental project, using the Pedagogy of Projects as a strategy, can help students learn about topics related to the environment and environmental education. The qualitative approach research was carried out in a municipal public school in the hinterlands of the State of São Paulo. As a result, it showed a series of information about the path of structuring and developing a partnership of this scale and the perception that the involvement of teachers is essential for the process to be strengthened. The author noted that the students got involved and learned from the process, however she found the need for an effective partnership also between professionals in formal and non-formal contexts.

The author concluded that the Pedagogy of Projects is a strategy that enables the development of a learning process in which the student obtains autonomy and involvement to work with cross-cutting themes, and that the partnership between formal and non-formal education requires great effort from the management team and teacher in defining teaching and learning strategies. J. M. dosSantos (2019), in her study, aimed to understand the proposal to create the Environment and Quality of Life Commissions (called *COM-VIDAS* in Portuguese) and their potential to mobilize the participation of the local community, as well as the socio-environmental changes in school spaces, made possible for the actions developed through these Commissions. The author concluded the research showing that *COM-VIDAS* can provide opportunities for the school space to be an environment of education and care, essential for the construction of a critical and emancipatory Environmental Education, which considers social, environmental, ethical, aesthetic issues, economic, race, gender and spiritual as important as those related to ecology and environmental preservation in the discussion of sustainability. Prazeres (2020) investigated how the environmental theme was addressed in Early Childhood Education in the public network of the city of Macapá, state of Amapá, in a critical perspective based on Paulo Freire's conception and on Reggio Emilia's approach. The study was developed through a qualitative approach, with a bibliographical review on the subject and survey of information from secondary sources, in public schools in the city of Macapá. The author highlighted the implementation of several projects developed and in progress in Early Childhood Education schools in Macapá, namely: pedagogical garden projects, recycling projects, peace in traffic project, combating endemic diseases projects such as Dengue fever, Zika virus and Chikungunya, among others. Prazeres (2020) highlighted that there was intense participation from everyone involved in the various environmental projects at the units, from the management teams, support teams, teachers, children and parents, who did not miss the project presentation meetings. It was observed through the studies and records that the children, in the development of different projects, were always interested, motivated, happy, curious and participating, and thus it was possible to understand different practices based on the childhood pedagogy, which conceives the child as a protagonist, who has a turn and a voice, in the planning and execution of every educational practice. The research evidenced the need to develop teaching materials for the study, deepening and

work of the environmental theme with children in Early Childhood Education.

## CONCLUSION

The research showed the inexistence of previous studies (dissertations and thesis) and found the need for research for a local investigation, expansion and more in depth study on environmental education in Elementary School, in the city of Macapá, state of Amapá, Brazil. We found studies on public policies and practices of environmental education in Elementary Schools in different municipalities and specific research on Early Childhood Education in the municipal network of Macapá, which revealed successful examples and propositional actions that can be considered for future implementation of the environmental education, in Public Elementary Schools in in the city of Macapá. Thus, it is possible to list some important considerations so that proposals for public policies and practices in environmental education in Elementary School are carried out:

- environmental education in a critical perspective with an interdisciplinary project, as a fundamental aspect of the curriculum, instead of commemorative or thematic events and punctual activities;
- participatory and collaborative work with students, educators, family, community, neighborhood associations, dialogue between formal and non-formal spaces;
- activities for the development of environmental awareness for a life in harmony with the environment, instead of the alienation that allows the exhaustive exploitation of natural resources, as if they were inexhaustible;
- environmental projects and practices that ensure the construction of knowledge, skills and values by students in an integrated and continuous way, with the objective of solving problems in the territory, in the neighborhood, in the city, instead of fragmentation and isolated content without meaning;
- elaboration of teaching materials about environment and environmental education with educators and students.

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