

ENVIRONMENTAL EDUCATION AND THE CLIMATE CRISIS

EDUCAÇÃO AMBIENTAL E CRISE CLIMÁTICA

EDUCACIÓN AMBIENTAL Y CRISIS CLIMÁTICA



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Introduction

This dossier brought together theoretical and practical works that addressed a discussion of how Environmental Education can contribute to tackling the planetary climate crisis. We searched for studies that associated environmental problems with the field of Environmental Education in its diversity of practices and theoretical perspectives, in school and non-school teaching spaces, at all levels, from kindergarten to higher education.

The environmental crisis currently faced severely threatens the existence of life as we know it. Therefore, immediate actions are urgently needed to transform the climate change scenario created by humanity based on the industrialization and exploitation of nature in recent years, which is increasingly irreversible and produces risks of sophisticated proportions.

We speak in terms of an environmental “crisis” since the conceptual, technological and methodological tools we have at our disposal are no longer sufficient to understand and face the climate scenario we have recently faced, given the complexity of the changes we have witnessed. From this perspective, it is necessary to build knowledge about the situation that allows us to act on it, seeking to mitigate, adapt and, ultimately and if possible, reverse the effects of climate change.

The climate problem can also be conceived in terms of “emergency”. The definition of this concept can be thought of as starting from the emergence of a pattern at a higher level of organization from specific and disorganized interactions at a lower level. Thus, due to human action in each part of the planet, which appears to be a punctual and disorganized action that disturbs the dynamic balance of biological interactions, in the long term, a new climate pattern emerges on the planet, which, in turn, affects each of these interactions. From this perspective, if the problem is caused in a fragmented way, by the accumulation of local actions, we also hope that it will be possible to seek a new pattern of new local actions, reoriented by a new common objective. We believe that the solution will not be achieved simply and through a unified initiative, but rather through the accumulation of coping initiatives over time.

Such confrontation requires a collective effort from all sectors of society, which represents a challenge, given the diversity of economic and political interests that often conflict with the objective of seeking solutions to environmental problems. The complexity of this scenario is global: all nations in the world share this responsibility and must reconcile their internal disputes, especially those involving areas of environmental relevance in which there is economic interest.

That said, this special issue of the magazine brings together the efforts of researchers from 23 Higher Education Institutions. Three of these institutions are foreign: University of Guadalajara (Mexico), International Iberoamerican University (Mexico), University of Porto (Portugal), University of Erfurt (Germany). In Brazil, there are HEIs from all regions: North - Instituto Federal do Amazonas (IFAM, AM), Instituto Nacional de Pesquisas da Amazônia (INPA, AM), Instituto Tecnológico Vale (ITV, PA), State University of Pará (UEPA, PA), Federal University of Rondônia (UNIR, RO); Northeast - Federal University of Rio Grande do Norte (UFRN, RN); Central-West - State University of Mato Grosso (UNEMAT, MT); Southeast - University of São Paulo (USP, SP), São Paulo State University “Júlio de Mesquita Filho” (UNESP, SP), Federal University of Espírito Santo (UFES, ES), Vale do Rio Verde University (UninCor, MG); and South - Pontifical Catholic University of Paraná (PUCPR), University of the State of Santa Catarina (UDESC, SC), University of the West of Santa Catarina (Unoesc, SC), State University of the Central West (UNICENTRO, PR), State University of West of Paraná (Unioeste, PR), Federal University of Santa Maria (UFSM, RS), Federal University of Paraná (UFPR, PR), and Tuiuti University of Paraná (UTP, PR).

This edition brings together works of different and interdisciplinary natures to face the environmental crisis: articles that discuss theoretical perspectives for Environmental Education; articles that provide bibliographical reviews of specific topics; articles that bring methodological perspectives and focus on the development of data collection instruments; empirical articles that bring data from regions that present socio-environmental vulnerability; as well as experience reports in the context of formal education in basic education and higher education.

Presentation of the chapters

The dossier opens with the article **“Educating for the future: Environmental Education and responsibility through the lens of Hans Jonas”**. Authored by Jelson Oliveira, Anderson Luiz Tedesco and Thiago Vasconcelos, the work seeks to unfold Hans Jonas' ideas about ethics and responsibility to face contemporary problems in Environmental Education. The development of the research takes place based on a bibliographic analysis following the hermeneutic methodology.

The second article is **“Training in Environmental Education and Climate Emergency: Theoretical-methodological contributions”**, authored by Adriana Massae Kataoka, Daniele Saheb and Anderson de Souza Moser. In this work, the authors reflect on the needs for training in Environmental Education to face the Climate Emergency. To this end, they present the development of a course designed and offered from this perspective and its contributions to the field.

The third article, **“Epistemology of the environment for biodiversity conservation: Validation of a diagnostic instrument”** by Thais Adrienne Silva Reinaldo, Luene Pessoa Vicente, Anaís Freitas Silveira, Ariadne Dall'aqua Ayres, Fernanda da Rocha Brando and Ana Maria de Andrade Caldeira brings methodological contributions. Based on Environmental Epistemology, the authors present semantic and statistical validation, as well as the potential of a diagnostic instrument based on a Likert scale for research in the area. The main axes of analysis made possible by the instrument are anthropic, biological and geosystemic.

In the fourth article, entitled **“Analytical approach on Environmental Education and Climate Crisis”**, Antônio Pereira Júnior, Gundisalvo Piratoba Morales, Norma Ely Santos Beltrão, Antem Nascimento Pontes, Edmir dos Santos Jesus, Sayda Suely Santos, Antonio Rosa and Cléa Nazaré Carneiro Bichara. The authors seek to understand the inclusion of issues related to the climate crisis in the school curriculum through a literature review of articles, dissertations, theses and books.

The fifth article is **“Issues in climate change literature: Challenges for Environmental Education”**, authored by Maria Arlete Rosa and Samira Kauchakje. In this investigation, also of a bibliographic nature, the authors seek to understand how the theme of climate change is present in articles in the area of Environmental Education in texts indexed in the Web of Science. The results are synthesized into analytical axes.

In the sixth article, entitled **“National Environmental Education Policy and impacts of wind farms: A bibliographic analysis in Potiguar municipalities”**, authored by Aline

Virgínia Medeiros Nelson and Hironobu Sano, the authors present results of a systematic review on Environmental Education promoted by wind farms in municipalities in Rio Grande do Norte. The investigation is conducted from the perspective of the principle of totality and non-formal education.

“Geographic vulnerability of Mozambique and its educational challenges in the face of climate change” written by Dilson Mutote Ronildo Stieg and Wagner dos Santos is the seventh article in the dossier. Through a critical-documentary analysis, the authors seek to understand how population growth and disorderly urbanization contribute to increasing Mozambique's geographic vulnerability to climate change. They also present a reflection on how Environmental Education can contribute to facing such challenges.

The eighth article, entitled **“Environmental Education, poetry and locality”**, is authored by Elba Aurora Castro Rosales and Francisco Javier Reyes Ruiz. In it, the researchers start from the question 'What does contemporary poetry from western Mexico say about nature in the context of the planetary and civilizational crisis?' presenting an interdisciplinary investigation from the critical perspectives of anthropology, aesthetics and environmental and ecocritical theory.

The ninth article, entitled **“Perceptions and demands of family farmers (Brazil and Spain) in relation to climate change”** written by Aline Costa Gonzalez, Vilmar Alves Pereira and Irene Carniatto, brings the results of observations and interviews carried out with farmers in the West of Paraná (Brazil) and the region of Galicia (Spain). Using hermeneutic phenomenology, the researchers sought to contribute to the development of Public Policies for environmental protection and education aimed at family farmers.

The tenth article is **“Indigenous Voices in Environmental Education: Building alliances to combat climate change”** written by Janelene Freire Diniz, Clarides Henrich de Barba and Keila Ferreira de Oliveira. Through conversation circles, the authors sought to analyze an intervention carried out in partnership between indigenous peoples, undergraduate students in Chemistry and Biology and employees of the Federal Institute of Education, Science and Technology of Rondônia to reflect on climate change and its triggers.

In the eleventh article, **“Young people and climate action: Educational approaches promoting the collective dimension of youth participation in climate adaptation in their communities”**, authored by Sara Pinheiro, Ana Cristina Torres and Isabel Menezes, the development of an education project is reported climate change with high school students from

three public schools in Portugal using participatory methodology. The objective of the project was to identify local climate problems and develop collective actions with their communities.

The twelfth article is **“‘Learning by Doing’ in Higher Education: Empirical insights into education for sustainable development”**, authored by Bettina Hollstein, João Tziminadis, Pia Scharge. In this research, the authors analyzed the experience of students in two contexts of Education for Sustainable Development at the University of Erfurt, Germany. The results are analyzed in light of John Dewey's pragmatism, seeking to weave relationships between education, problem solving and democracy.

In the thirteenth article, entitled **“Promoting sustainability through a 3D printing waste recycling workshop”**, authored by Jackeline Lira Bremgartner, Vitor Bremgartner, Lizandro Manzato and Joaquim dos Santos, the results of a 3D printing waste recycling workshop with secondary and higher education students from the Instituto Federal do Amazonas Campus Manaus Distrito Industrial (IFAM CMDI) are described and analyzed.

The dossier ends with the article **“Joint Environmental Education actions for the development, awareness, and innovation in the field of Geotechnical Engineering”** written by Paula Taiane Pascoal, Leonardo Alberto do Nascimento, Magnos Baroni. In the article, the authors report extension activities carried out by the Federal University of Santa Maria, RS, together with companies and civil society in Early Childhood Education. The theme of the activities was related to waste management.

We hope that reading these articles will contribute with theoretical-methodological elements for research in the area of Environmental Education, with teaching practice in all teaching modalities, with actions carried out in non-school spaces and with the formulation of public policies regarding respect for the urgent confrontation of the climate crisis.

We thank the authors for their important contributions and sharing insights into Environmental Education in different contexts. We hope that each counteraction will contribute to the emergence of a new climate pattern on our planet, which will allow the continued existence of life as we know it in all its manifestations and biodiversity. We would also like to thank the team of evaluators, editors and other publishing professionals who worked on the production of this special issue.

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