

An education for the end of the world? Contemporary socioenvironmental challenges and the role of environmental education in school contexts¹

Uma educação para o fim do mundo? Os desafios socioambientais contemporâneos e o papel da educação ambiental em contextos escolarizados

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ABSTRACT

This article is a theoretical essay on the state of the art of contemporary civilization's polycrisis at global and national levels, and on the challenges that these crises represent for environmental education that takes place in school contexts. Its objective, therefore, is to reflect on the magnitude of the socioenvironmental, climate and health crises and on the contribution that environmental education in schools can offer to reverse or mitigate the existing threats. The scientific and daily evidence reveals worrying signs that affect the state of the biosphere, human well-being and health, the food security of populations, the maintenance of peace and democracy and, ultimately, the very survival of the human species on planet earth. In these terms, allusion to narratives of collapse, catastrophe, rupture, decay and the end of the world is becoming more and more frequent in discourse and the social imaginary. Methodologically, the text dialogues with socioenvironmental literature, with contributions from critical environmental education, political

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ecology, conflicts and socioenvironmental justice. The reflection concludes that in the face of the challenges posed, environmental education in schools cannot surrender to social and pedagogical reproductionism. The time is for development and transformation of subjects capable to exercise freedom and defend life.

Keywords: Socioenvironmental crisis. Environmental Education. Climate change.

RESUMO

O presente artigo é um ensaio teórico sobre o estado da arte das polícrises da civilização contemporânea, nos planos global e nacional, e sobre os desafios que essas crises representam para a educação ambiental que se realiza em contextos escolarizados. O objetivo, portanto, é refletir sobre a magnitude das crises socioambiental, climática e sanitária e sobre as contribuições que a educação ambiental escolar pode oferecer para reverter ou mitigar as ameaças identificadas. As evidências científicas e cotidianas revelam sinais preocupantes que impactam o estado da biosfera, o bem-estar e a saúde humana, a segurança alimentar das populações, a manutenção da paz e da democracia e, em última instância, a própria sobrevivência da espécie humana no planeta Terra. Nesses termos, torna-se, cada vez mais frequente, no discurso e no imaginário social, a alusão a narrativas de colapso, catástrofe, ruptura, decadência e fim do mundo. Metodologicamente, o texto dialoga com a literatura socioambiental com aportes da Educação ambiental crítica, da Ecologia política, dos conflitos e da justiça socioambientais. A reflexão conclui que, diante dos desafios colocados, a educação ambiental escolar não pode se render ao reprodutivismo social e pedagógico. O tempo é de formação e transformação dos sujeitos para o exercício da liberdade e para a defesa da vida.

Palavras-chave: Crise socioambiental. Educação ambiental. Mudanças climáticas.

Introduction

“You have stolen my dreams and my childhood... We are at the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you?”

Greta Thunberg (DISCURSO..., 2019).

This article is a theoretical essay on the contemporary socioenvironmental, climate and sanitary crisis, at global and national levels, and reflects on the contributions that environmental education (EE) in schools can offer to reverse or mitigate the existing threats. Thus, its aim is to understand the socioenvironmental risks that threaten contemporary civilization, and discuss the challenges and opportunities that exist through environmental education in schools in this context.

This reflection is justified by the combination of worrying signs between societies and the environment, at local and global levels, and the challenges that a scenario in crisis poses to environmental education – EE. In other words, in face of these threats, what possible contribution can come from EE?

In recent decades, we have witnessed the existence and magnitude of the use of narratives associated with the ideas of the end of the world - collapse, catastrophe and rupture - in discourses and in the social imaginary. These apocalyptic references, albeit not meant as literal finitude, certainly indicate the end of the world, as we know it so far. Moreover, although these reports have existed since the beginning of the world, today they gain new verisimilitude and scientific foundations (DIAMOND, 2005; STENGERS, 2015; VIVEIROS DE CASTRO; DANOWSKI, 2014; KRENAK, 2019; LATOUR, 2020).

To accomplish this task, the article interlocks with literature that discusses the contemporary socioenvironmental crisis, with critical environmental Education, political Ecology, Justice and socioenvironmental conflicts (LIPIETZ, 2002; ACSELRAD, 2009; ROCKSTRÖM, 2009; LAYRARGUES; LIMA, 2014; IPCC, 2018; CARIDE; MEIRA CARTEA, 2020).

Scientific research and everyday experience have gathered growing evidence that the current civilizing model, marked by the expansion of capitalism, neoliberal ideas, extreme social inequalities and an individualistic, competitive and consumerist culture, is threatening the stability of the ecosystem and social life, and compromises the expectation of future human existence on the planet. This scenario constitutes an unprecedented socioenvironmental crisis, a climate crisis that is beyond control of human management and, more recently, a global health crisis that, up to April 18, 2021, has reached a total of 3.013.217 deaths in the world due to the COVID-19 pandemic, and has disorganized economies and societies, especially those most socioeconomically vulnerable (IPCC, 2018; CARIDE; MEIRA CARTEA, 2020; JOHNS HOPKINS, 2021).

It is important to add that the temporal acceleration of economic and social relations, driven by technological development, has intensified the scale and speed of environmental impact, by exponentially increasing the exploitation, consumption and degradation of natural resources (HARVEY, 2012; SANTOS; AZEVEDO, 2019).

At the national level, the combination of neoliberalism with authoritarian and excluding regimes has promoted the dismantling of the State, public and social policies and aggravated the population's work conditions and income, public education, environmental conservation, social well-being in general, and the quality of democracy (FEARNSIDE, 2019; SANTOS JUNIOR; DINIZ; SAULE JUNIOR 2020).

Since its institutionalization in the last decades of the twentieth century, school environmental education in Brazil has lived with difficulties in insertion in the school and in the curriculum, with inadequate teacher training, with the lack of an interdisciplinary practice and with a conservationist pedagogy that does not respond to multiple dimensions of the existing crises. Nevertheless, much effort has been made to introduce EE in schools because it represents a valuable opportunity for developing active citizenship, in the face of serious socioenvironmental and climatic challenges. In this sense, it can be a strategic agent for social change, notwithstanding the inertia of governments, international organizations and companies, in national and international negotiations and decisions on environmental conservation and climate emergency (GAUDIANO; MEIRA CARTEA, 2009; JACOBI *et al.*, 2011; CARIDE, MEIRA CARTEA, 2020).

The article is structured in three sections in addition to the introduction and the final considerations. The first section analyzes the main contemporary socioenvironmental challenges. The second deals with the national socio-political and environmental context and its effects on the ecosystem and public policies on environmental education. The third section discusses the potential transformation of environmental education in schools and the obstacles that still hinder its development.

Contemporary socioenvironmental challenges

Ulrich Beck's sociology of risks (1992) has resurfaced in view of the convergence of crises, conflicts, threats and environmental, climatic, health, technological, economic, labor and social risks that result from modernization and progress that escape the control of social institutions (GUIVANT, 2016; BECK, 2018).

For the author, the risks of advanced modernity are new because they are socially produced and because, in many cases, they are transnational, imperceptible, indeterminable in origin, unpredictable, incalculable from the

perspective of the damage it produces and, often, irreversible. Paradoxically, they are effects resulting from the triumph of the capitalist society and not from its flaws and failures. For Rodrigues (1998, p. 135) “the depletion of resources is happening exactly because in some places, the production model that seems infinite has worked out ‘right’”. Evaluating risks, therefore, is an indispensable analytical tool at the present time, marked by uncertainty, increasing complexity, technological allure and the acceleration of time.

A set of evidence and recent research converge on the gravity of the current context, realizing that the model of capitalist civilization increasingly reaches beyond the limits of the ecosystem that Johan Rockström *et al.* (2009) called “planetary frontiers”. For the authors, these frontiers represent the limits of safe operation for human life on earth, beyond which we run irreversible risks. Based on a mapping of nine ecosystem limits, seven of which are measurable, they concluded that we have already exceeded three of them: carbon emissions, losses in biodiversity and the cycles of nitrogen and phosphorus. The other indicators are the use of drinking water, the acidification of the oceans, the reduction of stratospheric ozone, deforestation and land use, air pollution and the concentration of aerosols in the Earth’s atmosphere.

This evidence prompted the Anthropocene hypothesis formulated by Crutzen (2002), which expresses the idea that the human species has become a geological force of systemic transformation of the planet due to the impacts produced in recent centuries, not only in the biosphere, but also in the lithosphere, terrestrial hydrosphere and atmosphere.

Jason Moore (2016) recognizes the relevance of the Anthropocene hypothesis, but prefers to call it the Capitalocene, as he disagrees with the generic attribution of responsibilities involved in the term that undermines the social, economic and environmental inequalities resulting from the capitalist mode of production.

The escalation of neoliberalism since the 1980s, is another element that greatly aggravates environmental and social degradation when it advances on ecosystem resources; increases the human ecological footprint on earth (WACKERNAGEL; REES, 1996), reduces State action and its power of socioeconomic regulation, when it destroys social and labor rights, worsens social inequalities, when it promotes the culture of individualism and consumption and disseminates the ideas of meritocracy (HARVEY, 2008; MOORE, 2016; SANDEL, 2020). In this process, the ethics of trust, reciprocity and cooperation are sacrificed; values that are increasingly scarce and relevant in the construction of a democratic sociability.

In other words, the neoliberal ideology moves and expands on the objective level by transforming nature and human labor into consumable goods at an increasingly accelerated pace through technological development. Subjectively, it creates images and identities associated with consumption, by feeding the myth of infinite growth and transferring to individuals the responsibility for the success or failure of their social well-being, their employability and the planet's environmental sustainability. This process results in an anthropocentric, economist, individualistic, technicist, competitive and consumerist culture (BAUMAN, 2003). As it promotes these values, the neoliberal culture tends to abandon values and practices such as solidarity, tolerance, social participation, citizenship and the defense of public goods.

In the socioenvironmental field, the promotion of an anti-ecological discourse anchored in the unlimited desire for “progress”, and the narrow understanding that the environmental agenda and institutional management mechanisms are obstacles to overcome in the name of economic expansion, is increasingly stronger (LAYRARGUES, 2018). The anti-ecological discourse is manifested in the powers of the republic and in the lobbies aimed at deconstructing the instruments of environmental regulation, in scientific and climatic denialism, in impunity for major environmental crimes, in the invasion of indigenous and quilombola lands and in the systematic attack on environmental leaders and movements.

The Covid 19 pandemic, which is still around us, has revealed new signs of the crisis we are in and the centrality of the environment in the diagnosis of our time. In a recent interview, historian and anthropologist Lilian Schwarz (2020), suggested that the Covid-19 pandemic should be treated as the landmark of the end of the 20th century. Her statement is justified by the serious consequences of the pandemic, by the multiple implications of the phenomenon at the global level, by the perplexity of authorities and institutions and by the generalized uncertainties it has established in our social lives.

The link between the pandemic and environmental problems are undisputed and recognized by several studies and analysts that identify the zoonotic character of the virus, resulting from the growing proximity between wild animals, domestic animals and humans. Ultimately, this proximity results from the predatory growth model that expands at the expense of deforestation, destruction of habitats and biodiversity. In this process, the most evident causes are large-scale agricultural activities, mining, logging, urbanization and major infrastructure works, as well as the trafficking of wild animals, migration, travel and global trade, changes in demography and climate change (FAO, 2013; ZANELLA, 2016; CONTINI *et al.*, 2020).

In this complex crisis, it is important to consider the incidence of temporal acceleration as a factor that intensifies the scale and speed of economic activity, the extraction of natural resources and, consequently, environmental degradation. The revolutions in the technological patterns are taking place in increasingly shorter time intervals, which result in increasing efficiency and speed in the exploitation of nature in order to meet the demands of growing capital productivity and profitability. Thus, the innovations that emerge within the productive system spread to the rest of the social system, transforming both the material world and the cultural and symbolic world (VIRILIO, 1996; HARVEY, 2012; ROSA, 2013).

Despite some gains in eco-efficiency, which reduces the consumption of energy and natural resources, from an absolute point of view, this innovative process makes social metabolism become increasingly predatory due to the incessant growth of the population, consumption and the resulting disposability. Furthermore, these relative gains in eco-efficiency are always followed by an increase in the consumption of goods and services that have become cheaper due to the innovation itself. For example, new light bulbs are more economical, so we tend to use them more than the old ones, neutralizing the gains obtained by eco-efficiency itself. This characterizes the well-known “Jevons Paradox” (ABRAMOVAY, 2012).

The outlined context summarizes the gravity of the global socioenvironmental condition and the need to make more effort to contain socioenvironmental degradation and build collective and individual solutions to protect human and non-human life from civilizatory threats.

In the following sections, the analysis will focus on the national socio-political context and on the challenges and opportunities of environmental education in schools in Brazil.

The Brazilian national socio-political context and its impact on the environment and on the environmental education public policies

The dismantling and setback of social and environmental rights and democratic public policies, from Michel Temer’s administration to the present day, reverberate throughout Brazilian society. Its effects act as a sequenced chain of destruction of the entire social protection system that took decades to build.

The historical social inequality in Brazil persists because of a neoliberal development model that affects jobs, income, labor laws and compensatory social policies, while creating privileges for private capital (SANTOS JUNIOR; DINIZ; SAULE JUNIOR, 2020). OXFAM's periodic reports on social inequality in Brazil demonstrate that the country remains one of the most unequal in the world and is a long way from fulfilling the rights affirmed in the 1988 Constitution (BRASIL, 1988). In summary, the 2017 data show that: the country's six largest fortunes together correspond to fifty percent of the poorest population; there are still about 16 million people living below the poverty line and the country bears the third worst Gini² index in Latin America and the Caribbean, just ahead of Colombia and Honduras. In a Human Development assessment of the United Nations Development Program-UNDP, which analyzes the situation of 140 countries worldwide, Brazil figures as the 10th most unequal country (MAIA, 2017).

The conservative wave underway in Brazil reveals the resurgence of the current neoliberal policy and its escalation with the election of Jair Messias Bolsonaro, in November 2018, consolidating the dismantling of the institutional, social and environmental structures built in the last four decades (FEARNSIDE, 2019).

In view of the above, nature management and conservation agencies, such as the Chico Mendes Institute for Biodiversity Conservation (ICMBio), the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) and the Ministry of the Environment (MMA) are in a clear process of being depleted and emptying its role in management, inspection and control of the Brazilian environment. The weakening of public environmental management, in turn, aggravates socioenvironmental conflicts and injustices, namely those involving land and the use of natural resources by indigenous, quilombola, extractivist and riverine people (MELLO-THERY, 2019; CARVALHO, 2020).

The disengagement of the State, in this sense, has facilitated the appropriation of resources by the sectors of agribusiness, mining, extractivism and logging. This uncontrolled advance on natural resources resulted in the New Forest Code approved in 2012, and in the disasters in Mariana in 2015³, Barcarena in 2018, and Brumadinho in 2019. It also led to the irresponsible release of the registration of more than 500 new pesticides, in the uncontrolled

2 The GINI index is an indicator of the income distribution of a population that ranges from 0 to 1, the more unequal the closer to 1.

3 Although the current context refers to Temer's and Bolsonaro's administrations, where public environmental management has been aggravated, it should be noted that Dilma Rousseff's administration also failed to predict and punish offenders in the case of Mariana-MG in 2015.

increase in deforestation and in fires that have seriously degraded the Amazon, Savanna and Pantanal biomes (MELLO-THERY, 2019; LASCHEFSKI, 2020).

The dismantling of public and environmental policies also meant the stripping of education and environmental education policies.

The participatory effort of the public sector, legislators, organized sectors of civil society and the community of educators, managed to establish important chapters in the Constitution in 1988 (BRASIL, 1988). These were: the National Environmental Education Program - PRONEA in 1994 (BRASIL, 1994, 2005); the National Environmental Education Policy - PNEA in 1999 (BRASIL, 1999); the National Curriculum Parameters - PCNs in 1997 (BRASIL, 1997); the Governing Body of the PNEA formed by the Department of EE - DEA of MMA and by the General Coordination of Environmental Education - CGEA of the Ministry of Education (MEC) in 2002 (BRASIL, 2002), and the Curricular Guidelines of EE in 2012, closing a cycle of what seemed to be the consolidation of Environmental Education in Brazil (BRASIL 2012a, 2012b). However, after institutionalizing and consolidating environmental education policies, with the impeachment of President Dilma Rousseff in 2016, came the dismantling of the socioenvironmental agenda built at the federal level, with repercussions in the state and municipal spheres.

From the point of view of environmental education, a number of initiatives that directly and indirectly produced serious setbacks for the sector are worth mentioning. For example, the extinction of the Department of Environmental Education - DEA of MMA and of the General Coordination of Environmental Education – the CGEA of the MEC, which constituted the inter-ministerial governing body⁴ of the 1999 National Environmental Education Policy – PNEA, since 2003. Along with the destruction of the institutional locus of the PNEA, a whole network of partnerships that PNEA had built with countless collective unions and civil society movements through the interaction of their governing body was also disorganized. With the extinction of its institutional base, EE also lost the funding to finance public sector policies. It should be noted that the signs of institutional marginalization of EE were already visible in the previous government of Michel Temer, with the almost complete exclusion of EE from the National Common Curricular Base - BNCC, approved in December 2017, for early childhood and elementary education and, in December 2018, for high school (OLIVEIRA, 2019; SILVA; LOUREIRO, 2020).

4 The CGEA-MEC was linked to SECADI - Secretariat of Continuing Education, Literacy, Diversity and Inclusion, also extinguished by the new government.

Challenges and opportunities of EE in schools

Carvalho and Muhle (2016) call attention to the loss of the countercultural (ROSZAK, 1972; CARVALHO, 2004) bias of EE that marked its identity in the 1960s/1970s. The revolutionary enthusiasm of the beginning seems to have dissipated in the monotony of a prescribed behavior, separated from the public sphere where policies are formulated and social rights and citizenship are upheld as laid out in the Constitution.

Over the last decades, the assessment and analyzes of EE in schools have been determined by limits, such as: curricular rigidity; precarious teacher training; the practice of an incipient interdisciplinarity; a content-focused and undebatable pedagogical practice⁵; a biological and behavioral approach to environmental problems; the scant incorporation of the political and ethical dimensions of the environmental phenomenon; the discontinuity of school projects and the distance from surrounding communities, local problems and socioenvironmental conflicts (TRAJBER; MENDONÇA, 2006; MACHADO, 2008; TORRES, 2013; TOZONI-REIS; CAMPOS, 2014; VIEGAS; NEIMAN, 2015; COSENZA ; MARTINS, 2018).

There are, for example, historical and cultural epistemological limits that demand a slower and more gradual transformation. The very Cartesian and dualistic nature of Western scientific knowledge and the disciplinarity and unidimensionality resulting from this matrix of knowledge emerge as persistent obstacles to the environmentalization of schools. These epistemological limits make it difficult to integrate the constituent elements of existential and environmental experiences, such as the ones between nature and culture, society and environment, human and natural sciences, reason and emotion, mind and body, male and female, objectivity and subjectivity, among other dichotomies. This cognitive disintegration also produces hierarchical and political judgments, with anthropocentric and Eurocentric conclusions, of superiority, power and domination, with clear losses to a complex understanding of the environment and its insertion in the school space.

Evidence has shown that the inclusion of environmental education in schools depends on a set of pedagogical and political decisions that are beyond the control of teachers and the schools themselves. There is, therefore, no way to

⁵ Contentism expresses the tendency to approach the teaching-learning process as a mere transmission and memorization of information in which the student is a passive, uncritical and non-reflective being of the educational process.

understand this process just by making schools and teachers responsible for poor environmentalization, without considering the participation or not of sectoral public policies and agencies. It is well known that in Brazil, EE suffers from the same problems in the educational field, which are historical and chronic. Namely, the lack of political priority, budget restrictions, the devaluation and unreliability of teaching, the scarce opportunities for training and lack of encouragement for research. In other words, schools and environmental education lack human, pedagogical, financial, scientific, infrastructural and technical resources.

Faced with such limits, how is it possible to think about EE in schools given the serious socioenvironmental challenges experienced in contemporary society? What can be done with the available resources?

In the first place, it is necessary to internalize the socioenvironmental problems that mark our time and deal with them in their complexity, considering their historicity, their genesis and their multiple constituent dimensions. The climate crisis that needs attention, for example, is still a marginal topic on the school agenda, as are the themes of socioenvironmental inequality, conflicts and environmental justice, losses in biodiversity, traditional populations, the energy matrix and the new epidemiological risks that, together, are the result of the degradation promoted by the expansion of the capitalist economy. Naturally, this approach must respect the age and the psychopedagogical capacity of the students to understand the problems and assimilate them in a constructive way.

It is undeniable that without a place in the curriculum, the environmental issue has little chance of progressing satisfactorily in school environments. The dilemma between the curricular insertion and the transversal nature of EE is a historical impasse in the area that continues very much alive today, and, therefore, needs to be rethought and re-discussed. The guidelines of the PNEA, the National Curriculum Parameters - PCNs and the Curricular Guidelines of EE, affirmed the interdisciplinary and transversal insertion of EE in the curriculum and in the school. However, because the curriculum, school organization, official knowledge and teacher training obey a disciplinary logic, all that has been left for EE is a peripheral, secondary and discontinuous place in the school. In view of this impasse, it seems evident that in addition to the rediscussion of curricular insertion, there is a need for more effort in the continuing education of teachers, in the reorganization of school management, in the reform of the curriculum, in didactic transposition, in the workload of teachers and in the interaction between the community of teachers in the school (OLIVEIRA, 2007; LAMOSA; LOUREIRO, 2011; TOZONI-REIS; CAMPOS, 2014; CARVALHO, 2020).

Projects, on the other hand, are powerful educational instruments that make it possible to coordinate school and society with contemporary socioenvironmental problems. They enable research, interdisciplinarity and

critical thinking, the coordination between theory and practice, learning from experience, the collective construction of knowledge, contact with the community and with local problems. However, projects tend to lack continuity, planning time, support from school management, integration between teachers of different disciplines and basic infrastructure resources. It is also important to consider the partnerships that the school establishes to develop projects and the way the partnerships work. Of course, partnerships are generally welcome, but some of them pose problems. For example, projects that arrive ready at school often do not involve the participation of teachers and students and the topics chosen usually disregard the school's educational agenda. Some of these projects are products of partnerships with companies interested in promoting goods and services or cleaning up their environmental image, compromised by their own productive logic (MACHADO, 2008; LAMOSA; LOUREIRO, 2011). On the other hand, there are opportunities for very fertile partnerships with universities, NGOs, associations and social and environmental movements, traditional communities, government agencies involved in socioenvironmental issues and the surrounding communities. All of them provide relevant learning through meetings, mutual visits, courses, lectures, field days and political-pedagogical alliances.

The issue of behaviorism remains very much alive in EE in schools and represents another important obstacle to the advancement of an emancipating EE. It is an obstacle because it shifts public environmental problems to the private sphere, attributing all the responsibility for these problems to individuals. In doing so, it depoliticizes the environmental debate and demobilizes the capacity for ecopolitical action from the teachers and students involved (LIMA, 2017; LAYRARGUES, 2020).

Education, as is well known, has no life of its own. It is a subsystem of society as a whole, conditioned by current values, rationality and social practices. In this context, it has the primary function of transmitting the culture and traditions established to socialize new generations. However, and above all, it also has the role of renewing that same culture when civilization and hegemonic practices threaten the conservation of life as a whole, causing oppression and injustice against the population or parts of it, and compromising the freedom and dignity of human and non-human beings. This seems to be the situation in which we find ourselves, i.e.: when scientific evidence reveals the harbingers of the collapse of the world and of society, as we know them. Thus, if education is a product of this world, it must be provoked to resist, reconstruct and to transition to another society capable of protecting life, solidarity and socioenvironmental justice. Therefore, environmental education for the end of the world must not allow passivity, social indoctrination and the social and pedagogical reproduction of the *status quo*.

The need for radical changes in our production and consumption patterns, lifestyles and cultural values is one of the most complex challenges in Environmental Education. For Charlot (2020, p. 13)

it is not possible to think of an Environmental Education that deals with the future of the human species and the world, if the school continues to function as a place of competition, of permanent evaluation, threatening failure, all of which is more important than development.

Andrade and Sorrentino (2013), in turn, argue that an EE focused on the technical resolution of problems is limited to the verifiable dimension of the environmental issue, without advancing the matter in-depth nor the relationship of educators and students with the public sphere.

Thus, although dealing with objective environmental issues (garbage, pollution, deforestation, etc.) is important in building societies whose ways of life are more sustainable than today, it is not enough. A clean and forested world does not necessarily mean a more just and democratic world. The ability of students to recognize and collect plastic in a schoolyard does not enable them to reflect on issues related to consumerism, health, or even solid waste policies. Finally, people who know the right color of the container to place a recyclable plastic packaging are, likewise, not more critical, participatory and aware of the reasons for their affections and the presence of their "I" in the world. It is necessary to go further (ANDRADE; SORRENTINO, 2013, p. 95, our translation).

There is no recipe that accounts for the complexity of EE in Brazil and worldwide in the present scenario. However, when what is at stake is the need for a new social organization due to the crises listed above, it is not a matter of building a "new normal" under the same conditions of socioenvironmental inequality, consumption and interpersonal relationships riddled with hatred and violence. There is a link between the individual, society and the environment, which is not resolved in the purely private sphere.

As one can see, EE in schools has several challenges to overcome and, at the same time, opportunities to develop. It is worth noting, however, that the peripheral condition that it has occupied in the school system does not reduce its social, pedagogical, cultural and political importance and without EE in schools, it will be much more difficult to build a sustainable society.

Final considerations

This article sought to reflect on the role of EE in schools context given the socioenvironmental, climatic and health crises that have marked the 20th and 21st centuries. A primary issue, that has persisted since the 1970s, due to the emergence of environmental issues in the world, is the need to adapt the educational system, in its thematic and pedagogical priorities, to the challenges and urgencies of the environmental crisis. Evidently, this is a highly complex challenge that cannot be reduced to recommending ecologically correct behavioral models and to practices of indoctrination or moral standards. In this context of plural crises, environmental education in schools must appoint a new pedagogical repertoire that goes well beyond that.

The discussion carried out during this study noted the importance of a pedagogy of autonomy and resistance, the internalization of local problems and socioenvironmental conflicts, the formulation of participatory methodologies and dialogue with the non-school community, without losing sight of the integration within the school community.

As we have seen, what is at stake is the survival of the species and the safekeeping of life in its broad sense. This implies a commitment to the present time and to future generations. One of the watchwords of several contemporary social movements has been “peace is not possible without social justice”. Under this slogan, we could add environmental justice.

In this sense, the young activists of the “Fridays for the Future” movement, headed by Greta Thunberg, are right when they warn us that they have lost their dreams and their childhood in the name of a petty civilizing project whose priorities are only money and economic growth. They have a decisive contribution to the construction of an Environmental Education for the end of the world and a transition to a civilization where life is more important than the economy.

REFERENCES

- ABRAMOVAY, Ricardo. Desigualdades e limites deveriam estar no centro da Rio+20. *Estudos Avançados*, São Paulo, v. 26, n. 74, p. 21-33, jan./abr. 2012. Available at: <https://www.scielo.br/j/ea/a/bnhxJtvChzGypNhYtGj4ZTf/?lang=pt>. Access on: June 12, 2015.
- ACSELRAD, Henry; MELLO, Cecília Campello Amaral; BEZERRA, Gustavo das Neves. *O que é justiça ambiental*. Rio de Janeiro: Garamond, 2009.
- ANDRADE, Daniel Fonseca de; SORRENTINO, Marcos. Da Gestão Ambiental à Educação Ambiental: as dimensões subjetiva e intersubjetiva nas práticas de educação ambiental. *Pesquisa em Educação Ambiental*, São Paulo, v. 8, n. 1, p. 88-98, 2013. Available at: <https://www.revistas.usp.br/pea/article/view/128660>. Access on: Nov. 3, 2020.
- BAUMAN, Zygmunt. *Modernidade líquida*. Rio de Janeiro: Zahar, 2003.
- BECK, Ulrich. *Risk Society: Towards a New Modernity*. London; New York: Sage, 1992.
- BECK, Ulrich. *A metamorfose do mundo: novos conceitos para uma nova realidade*. Rio de Janeiro: Zahar, 2018.
- BRASIL. [Constituição (1988)]. *Constituição da República Federativa do Brasil de 1988*. Brasília, DF: Presidência da República, [2020]. Available at: http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm. Access on: Oct. 5, 2020.
- BRASIL. Ministério da Educação. Secretaria de Educação Fundamental. Parâmetros curriculares nacionais: introdução aos parâmetros curriculares nacionais / Secretaria de Educação Fundamental. Brasília, DF: MEC: SEF, 1997. Available at: <http://portal.mec.gov.br/seb/arquivos/pdf/livro01.pdf>. Access on: Mar. 17, 2019.
- BRASIL. Presidência da República. *Lei nº 9.795, de 27 de abril de 1999*. Dispõe sobre a educação ambiental, institui a Política Nacional de Educação Ambiental (Pnea) e dá outras providências. Brasília, DF: Presidência da República, 27 abr. 1999. Available at: http://www.planalto.gov.br/ccivil_03/leis/19795.htm. Access on: Mar. 17, 2019.
- BRASIL. Presidência da República. *Decreto nº 4281, de 25 de junho de 2002*. Regulamenta a Lei nº 9.795, de 27 de abril de 1999, que institui a Política Nacional de Educação Ambiental, e dá outras providências. Brasília, DF: Presidência da República, 2002. Available at: http://www.planalto.gov.br/ccivil_03/decreto/2002/d4281.htm. Access on: Mar. 17, 2019.
- BRASIL. Ministério da Educação. Programa nacional de educação ambiental - ProNEA/ Ministério do Meio Ambiente, Diretoria de Educação Ambiental; Ministério da Educação. Coordenação Geral de Educação Ambiental. 3. ed. Brasília, DF: Ministério do Meio Ambiente, 2005. Available at: <http://portal.mec.gov.br/secad/arquivos/pdf/educacaoambiental/pronea3.pdf>. Access on: Mar. 17, 2019

BRASIL. Ministério da Educação. Conselho Nacional de Educação. *Parecer CNE/CP n° 14, de 6 de junho de 2012*. Institui as Diretrizes Curriculares para a Educação Ambiental. Brasília, DF: MEC, 2012a. Available at: http://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=10955-ppc014-12&Itemid=30192. Access on: Sept. 21, 2020.

BRASIL. Ministério da Educação. Conselho Nacional de Educação. *Resolução CNE/CP n° 2, de 15 de junho de 2012*. Estabelece as Diretrizes Curriculares Nacionais para a Educação Ambiental. Brasília, DF: MEC, 2012b. Available at: http://portal.mec.gov.br/dmdocuments/rcp002_12.pdf. Access on: Nov. 3, 2020.

CARIDE, José Antonio; MEIRA CARTEA, Pablo Ángel. La educación ambiental en los límites, o la necesidad cívica y pedagógica de respuestas a una civilización que colapsa. *Revista Interuniversitaria*, Salamanca, n. 36, p. 21-34, 2020. Available at: <https://dialnet.unirioja.es/servlet/articulo?codigo=7607759>. Access on: Sept. 2, 2020.

CARVALHO, Isabel Cristina de Moura. *Educação Ambiental: a formação do sujeito ecológico*. São Paulo: Cortez, 2004.

CARVALHO, Isabel Cristina de Moura; MUHLE, Rita Paradera. Intenção e atenção nos processos de aprendizagem: por uma educação ambiental “fora da caixa”. *Ambiente & Educação*, Rio Grande, v. 21, n. 1, p. 26-40, 2016. Available at: <https://periodicos.furg.br/ambeduc/article/view/6090>. Access on: July 30, 2020.

CARVALHO, Isabel Cristina de Moura. A pesquisa em educação ambiental: perspectivas e enfrentamentos. *Pesquisa em Educação Ambiental*, São Paulo, v. 15, n. 1, p. 39-50, 2020. Available at: <https://www.periodicos.rc.biblioteca.unesp.br/index.php/pesquisa/article/view/15126>. Access on: Sept. 14, 2020.

CHARLOT, Bernard. A educação ambiental na sociedade contemporânea: bricolagem pedagógica ou projeto antropológico? *Pesquisa em Educação Ambiental*, São Paulo, v. 15, n. 1, p. 10-19, 2020. Available at: <https://doi.org/10.18675/2177-580X.2020-15124>. Access on: Sept. 14, 2020.

CONTINI, Carlo *et al.* The novel zoonotic COVID-19 pandemic: an expected global health concern. *The journal of infection in developing countries*, Sassari, ITA, v. 3, n. 14, p. 254-264, 2020. Disponível em: <https://www.jidc.org/index.php/journal/article/view/12671>. Access on: Oct. 15, 2020.

COSENZA, Angélica; MARTINS, Isabel. Environmental education for environmental justice in the school context: teachers, discourses and practices. *Pesquisa em Educação Ambiental*, São Paulo, v. 13, p. 115-127, 2018. Available at: <https://www.periodicos.rc.biblioteca.unesp.br/index.php/pesquisa/article/view/12462>. Access on: Sept. 1, 2020.

CRUTZEN, Paul Josef. Geology of mankind: the Anthropocene. *Nature*, London, v. 415, p. 23, 2002. Available at: <https://www.nature.com/articles/415023a>. Access on: Nov. 6, 2005.

DIAMOND, Jared. *Collapse: how societies choose to fail or succeed*. New York, USA: Viking Penguin, 2005.

DISCURSO na íntegra de Greta Thunberg nas Nações Unidas. [S.l.: s.n.], 23 set. 2019. 1 vídeo (5 min). Publicado pelo canal Onu News. Available at: https://www.youtube.com/watch?v=mbnRv81s_9Q. Access on: Mar. 5, 2020.

FAO. *World Livestock 2013: Changing disease landscapes*. Rome, 2013. Available at: <http://www.fao.org/3/i3440e/i3440e.pdf>. Access on: May 28, 2020.

FEARNSIDE, Philip Martin. Retrocessos sob o Presidente Bolsonaro: Um Desafio à Sustentabilidade na Amazônia. *Sustentabilidade International Science Journal*, Manaus, v. 1, n.1, p. 38-52, abr./jun. 2019. Available at: <https://repositorio.inpa.gov.br/handle/1/23116>. Access on: Oct. 20, 2020.

GAUDIANO, Édgar González; MEIRA CARTEA, Pablo. Educación, comunicación y cambio climático: Resistencias para la acción social responsable. *Trayectorias*, San Nicolás de los Garza, v. 11, n. 29, jul./dic, 2009. Available at: <https://dialnet.unirioja.es/servlet/articulo?codigo=3214151>. Access on: Sept. 7, 2020.

GUIVANT, Julia Silvia. O legado de Ulrich Beck. *Ambiente & Sociedade*, São Paulo, v. XIX, n. 1, p. 229-240, jan./mar. 2016. Available at: <https://www.scielo.br/j/asoc/a/VMkgyWKytMgnvbF8dchY9sQ/?lang=pt>. Access on: Sept. 3, 2019.

HARVEY, David. *O neoliberalismo: história e implicações*. São Paulo: Loyola, 2008.

HARVEY, David. *Condição pós-moderna: uma pesquisa sobre as origens da mudança cultural*. São Paulo: Loyola, 2012.

IPCC (Intergovernmental Panel on Climate Change). *Global warming of 1.5 °C. Summary for Policymakers*. Genebra: IPCC, 2018. Available at: <http://www.ipcc.ch/report/sr15/>. Access on: Sept. 23, 2019.

JACOBI, Pedro Roberto *et al.* Mudanças climáticas globais: a resposta da educação. *Revista Brasileira de Educação*, Rio de Janeiro, v. 16, n. 46, jan./abr. 2011. Available at: <https://www.scielo.br/j/rbedu/a/NpT7tTmr66dmNprkstjvspG/abstract/?lang=pt>. Access on: June 19, 2012.

JOHNS HOPKINS. Coronavirus Resource Center. *Covid-19 Dashboard by the Center for Systems Science and Engineering (CSSE)*. Baltimore, USA, 2020. Available at: <https://coronavirus.jhu.edu/map.html>. Access on: Oct. 29, 2020.

KRENAK, Ailton. *Ideias para adiar o fim do mundo*. São Paulo: Companhia das Letras, 2019.

LASCHEFSKI, Klemens Augustinus. Rompimento de barragens em Mariana e Brumadinho (MG): Desastres como meio de acumulação por despossessão. *Ambientes*, Francisco Beltrão, v. 2, n. 1, p. 98-143, 2020. Available at: <http://e-revista.unioeste.br/index.php/ambientes/article/view/23299>. Access on: Oct. 29, 2020.

LAYRARGUES, Philippe Pomier. Subserviência ao capital: educação ambiental sob o signo do antiecológico. *Pesquisa em Educação Ambiental*, São Paulo, v. 13, n. 1, p. 28-47, 2018. Available at: <https://doi.org/10.18675/2177-580X.vol13.n1.p28-47>. Access on: Sept. 7, 2020.

LAYRARGUES. Manifesto por uma Educação Ambiental indisciplinada. *Ensino, Saúde e Ambiente*, Rio de Janeiro, Número Especial, p. 44-88, jun. 2020. Available at: <https://periodicos.uff.br/ensinosaudeambiente/issue/view/2169>. Access on: Oct. 5, 2020.

LAYRARGUES, Philippe Pomier; LIMA, Gustavo Ferreira da Costa. As macro-tendências político-pedagógicas da educação ambiental brasileira. *Ambiente & Sociedade*, São Paulo, v. XVII, n. 1, p. 23-40, 2014. Available at: <https://www.scielo.br/j/asoc/a/8FP6nynhjdZ4hYdqVFdYRtx/?format=pdf&lang=pt>. Access on: Dec. 10, 2015.

LAMOSA, Rodrigo de Azevedo Cruz; LOUREIRO, Carlos Frederico Bernardo. A educação ambiental e as políticas educacionais: um estudo nas escolas públicas de Teresópolis-RJ. *Educação e Pesquisa*, São Paulo, v. 37, n. 2, p. 279-292, mai./ago. 2011. Available at: <https://www.scielo.br/j/ep/a/Sx9Pnk4HPSP6Tjt94V3Qc3m/abstract/?lang=pt>. Access on: Oct. 12, 2020.

LATOUR, Bruno. *Onde Aterrar*. Rio de Janeiro: Bazar do Tempo, 2020.

LIMA, Gustavo Ferreira da Costa. A crise climática, a onda conservadora e a educação ambiental: desafios e alternativas aos novos contextos. *Revista Eletrônica do Mestrado em Educação Ambiental*, Rio Grande, Edição especial, XVI Encontro Paranaense de Educação Ambiental, p. 40-54, set. 2017. Available at: <https://periodicos.furg.br/remea/article/view/7141>. Access on: Oct. 25, 2017.

LIPIETZ, Alain. A ecologia política: solução para a crise da instância política? In: ALIMONDA, Hector (ed.). *Ecologia política*. Buenos Aires: CLACSO, 2002. p. 15-26.

MACHADO, Júlia Teixeira. Um estudo diagnóstico da Educação Ambiental nas Escolas do Ensino Fundamental do Município de Piracicaba/SP. In: ENCONTRO NACIONAL DA ASSOCIAÇÃO NACIONAL DE PÓS-GRADUAÇÃO E PESQUISA EM AMBIENTE E SOCIEDADE, 4., 2008, São Paulo. *Anais [...]*. São Paulo: ANPPAS, 2008.

MAIA, Katia (coord.). *A distância que nos une: um retrato das desigualdades brasileiras*. São Paulo: Oxfam, 2017.

MELLO-THERY, Neli Aparecida de. Perspectivas ambientais 2019: retrocessos na política governamental. *Confins*, Paris, n. 501, p. 1-14, 2019. Available at: <https://doi.org/10.4000/confins.21182>. Access on: May 22, 2020.

MOORE, Jason W. (ed.). *Anthropocene or Capitalocene? Nature, History, and the Crisis of Capitalism*. Oakland, USA: PM Press, 2016.

OLIVEIRA, Caroline. Especialistas em educação ambiental protocolam manifesto contra medidas de Bolsonaro. *Justificando*. São Paulo, 14 jan. 2019. Available at: <http://www.justificando.com/2019/01/14/especialistas-em-educacao-ambiental-protocolam-manifesto-contra-medidas-de-bolsonaro/>. Access on: Sept. 21, 2020.

OLIVEIRA, Haydée Torres de. Educação ambiental – ser ou não ser uma disciplina: essa é a principal questão?! In: TRAJBER, Rachel; MELLO, Soraia Silva de. *Vamos cuidar do Brasil: conceitos e práticas em educação ambiental na escola*. Brasília: MEC/MMA: Unesco, 2007. p. 103-112.

ROCKSTRÖM, Johan *et al.* Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society*, Wolfville, CAN, v. 14, n. 2, p. 32, 2009. Available at: <https://www.ecologyandsociety.org/vol14/iss2/art32/>. Access on: June 8, 2010.

RODRIGUES, Arlete Moysés. A utopia da sociedade sustentável. *Ambiente e Sociedade*, Campinas, ano I, n. 2, p. 133-138, 1998.

ROSA, Harmut. *Social acceleration: a new theory of modernity*. New York: Columbia University Press, 2013.

ROSZAK, Theodore. *A contracultura: reflexões sobre a sociedade tecnocrática e a oposição juvenil*. 2. ed. Petrópolis, RJ: Vozes, 1972.

SANDEL, Michael. *The Tyranny of Merit: What's Become of the Common Good?* New York: Farrar, Straus e Giroux, 2020.

SANTOS, Ivone Neiva; AZEVEDO, José. Compressão do espaço-tempo e hiperlocalização: os novos flâneurs. *Comunicação e Sociedade*, Braga, v. 35, p. 239-257, 2019. Available at: <https://journals.openedition.org/cs/811>. Access on: Nov. 6, 2020.

SANTOS JUNIOR, Orlando Alves; DINIZ, Tania Maria Ramos de Godoi; SAULE JUNIOR, Nelson (org.). *Dossiê do desmonte da política urbana federal nos governos Temer e Bolsonaro e seus impactos sobre as cidades: violações de direitos humanos e os riscos de construção de cidades intolerantes, excludentes, injustas e antidemocráticas*. Rio de Janeiro: IPPUR, UFRJ, 2020.

SCHWARCZ, Lilian. 100 dias que mudaram o mundo. *Universa Uol*, São Paulo, 2020. Available at: <https://www.uol.com.br/universa/reportagens-especiais/coronavirus-100-dias-que-mudaram-o-mundo/index.htm#tematico-6>. Access on: Oct. 5, 2020.

SILVA, Silvana do Nascimento; LOUREIRO, Carlos Frederico Bernardo. As vozes de professores-pesquisadores do campo da educação ambiental sobre a Base Nacional Comum Curricular (BNCC): Educação Infantil ao Ensino Fundamental. *Ciência & Educação*, Bauru, v. 26, p. 1-15, 2020. Available at: <https://www.scielo.br/j/ciedu/a/pnkhJbqv7Q65L6Y6HJZQsgg/?lang=pt>. Access on: Oct. 12, 2020.

STENGERS, Isabelle. *No tempo das catástrofes: resistir à barbárie que se aproxima*. São Paulo: Cosac Naify, 2015.

TORRES, Maria Betânia Ribeiro. *As cidades, os rios e as escolas: um estudo das práticas de educação ambiental nas cidades de Natal e Mossoró – RN*. 2013. Tese (Doutorado em Ciências Sociais) – Programa de Pós-Graduação em Ciências Sociais, Universidade Federal do Rio Grande do Norte, Natal, 2013.

TOZONI-REIS, Marília Freitas de Campos; CAMPOS, Luciana Maria Lunardi. Educação ambiental escolar, formação humana e formação de professores: articulações necessárias. *Educar em Revista*, Curitiba, v. 30, n. 3, p. 145-162, 2014. (Número Especial. Dossiê - Ensino Superior e questões ambientais: mudanças climáticas, ambientalização curricular e formação de professores). Available at: <https://www.scielo.br/j/er/a/cfc9PgJjwsyVc7wMkw4bJSz/?format=pdf&lang=pt>. Access on: Oct. 30, 2020.

TRAJBER, Rachel; MENDONÇA, Patrícia Ramos (org.). *Educação na diversidade: o que fazem as escolas que dizem que fazem educação ambiental*. Brasília, DF: Secretaria de Educação Continuada, Alfabetização e Diversidade, 2007.

VIEGAS, Patrícia de Lourdes; NEIMAN, Zysman. A prática de educação ambiental no âmbito do ensino formal: estudos publicados em revistas acadêmicas brasileiras. *Pesquisa em Educação Ambiental*, São Paulo, v. 10, n. 2, p. 45-62, 2015. Available at: <https://www.periodicos.rc.biblioteca.unesp.br/index.php/pesquisa/article/view/8816>. Access on: Aug. 30, 2020.

VIVEIROS DE CASTRO, Eduardo; DANOWSKI, Déborah. *Há mundo por vir? Ensaio sobre os medos e os fins*. Florianópolis: Cultura e Barbárie, 2014.

VIRILIO, Paul. *Velocidade e Política*. São Paulo: Estação da Liberdade, 1996.

WACKERNAGEL, Mathis; REES, William E. *Our Ecological Footprint: Reducing Human Impact on the Earth*. Canada: New Society Publishers, 1996.

ZANELLA, Janice Reis Ciacci. Zoonoses emergentes e reemergentes e sua importância para saúde e produção animal. *Pesquisa Agropecuária Brasileira*, Brasília, v. 51, n. 5, p. 510-519, maio 2016. Available at: <https://www.scielo.br/j/pab/a/LjPRt7VpRQdW3cWTY3KZ4Pj/abstract/?lang=pt>. Access on: June 10, 2020.

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