

Critique of environmental education in geography teaching: discussion and pedagogical proposals

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Critique of environmental education in geography teaching: discussion and pedagogical proposals

Abstract

This work is driven by theoretical and methodological questions posed by dialectical materialism about common environmental approaches to geography education. This leads us to critically evaluate environmental issues, geography teaching itself, the educator's role, and to finding further possibilities of didactic activities. Our primary goal is to evaluate such educational practices when dealing with environmental problems, considering these same guidelines. We then propose some examples of pedagogical activities aligned with critical and enforceable geographic education, guided by a substantially revised bibliography. Here, environmental education is opposed to conservative practices and some alternatives are shown. We accomplish this by putting forward three pedagogical proposals that are part of high school environmental education. They are suitable proposals for different educational realities, as they require the active involvement of educators and students. The discussion and proposals must be translated into effective practice based on each students' everyday knowledge and experiences.

Keywords: Environmental education. Geography Education. Historical-Critical Pedagogy. Materialism. Environmental degradation.

Crítica à educação ambiental no ensino de geografia: discussão e propostas pedagógicas

Resumo

Este trabalho é movido por questões teórico-metodológicas acerca de práticas de educação ambiental no ensino de Geografia. O objetivo é discutir se tais atividades questionam os problemas ambientais. Procede-se a uma ampla revisão bibliográfica e se propõem atividades pedagógicas de acordo com o ensino geográfico crítico e aplicável. A crítica do materialismo histórico-dialético orienta a discussão da problemática ambiental, do ensino de Geografia,

do papel dos docentes e das possibilidades alternativas de atividades didáticas. A educação ambiental é contraposta a práticas conservadoras, com alternativas didáticas passíveis de concretização. Como resultados, apresentam-se três propostas pedagógicas que permeiam conteúdos curriculares do ensino de Geografia para o ensino médio envolvendo a educação ambiental. Ressalta-se que são propostas adaptáveis a diferentes realidades educacionais e que demandam envolvimento ativo de professores e estudantes. É essencial que a discussão e as propostas se traduzam em prática efetiva a partir do enfoque nos saberes cotidianos dos estudantes.

Palavras-chave: Educação ambiental. Ensino de Geografia. Pedagogia histórico-crítica. Materialismo. Degradação ambiental.

Crítica a la educación ambiental en la enseñanza de la geografía: discusión y propuestas pedagógicas

Resumen

Este trabajo está impulsado por preguntas teóricas y metodológicas sobre las prácticas de educación ambiental en la enseñanza de la geografía. El objetivo es debatir si estas actividades pedagógicas tienen una naturaleza cuestionable de los problemas ambientales. Adopta un examen bibliográfico y propuestas de actividades pedagógicas de acuerdo con la enseñanza geográfica crítica y aplicable. La crítica del materialismo histórico-dialéctico guía las discusiones sobre el problema ambiental, la enseñanza de la geografía, el papel de los profesores y las alternativas posibles de actividades didácticas. La educación ambiental se discute en oposición a las prácticas conservadoras. Se presentan tres propuestas pedagógicas que impregnan contenidos curriculares de la enseñanza de la geografía para la escuela secundaria, relacionándose a la educación ambiental. Son propuestas adaptables a diferentes realidades educativas, que exigen la participación activa de profesores y estudiantes. Es esencial que las discusiones y propuestas se conviertan en prácticas efectivas.

Palabras clave: Educación ambiental. Enseñanza de Geografía. Pedagogía histórico-crítica. Materialismo. Degradación ambiental.

Introduction

The relentless structural crises of global capitalism defined by historical dilemmas, and which affect everything in the socio-environmental sphere, also opens the opportunity for rupture. Environmental degradation circumstances are sufficiently known, with new data and information being disclosed at a steady rate. Because of this, there is a compelling requirement to change the production, consumption, and exploitation bases. The critical education which captures all contents that surround us is therefore a social task of transformation, that is broad and emancipatory.

The dialectics between society and education makes them both influence each other, in a perpetual movement of change. The social actions of individuals who interact and share a common space can delineate and define education. This material base space is exactly what should be modified. It is the social reproduction necessary environment. The society-education pair then is closely linked to space. In particular, it is connected to the educational process that takes place in an environment where practices are taught and learned. Hence, we have now an inseparable triad: society-education-environment. Such a finding, therefore, highlights the importance of a profound environmental debate. Later, it can result in a more balanced spatial production coming from aware individuals' actions.

On Almeida's account (2000), many views of environmental education can be built and disseminated. Some of them favor a conservative or preservationist formation, while others present a more critical approach. Anyway, they are all both reflection and cause of political acts, especially when working with education.

The ethical question here is critical. Especially when the main goal is to change the values that lead to the formation of another environmental education. A truly concerned society with the socio-environmental equality theme must be a society that values the well-being of its individuals in the first place. When the achievement of collective well-being is not a priority in the individual and collective actions (personal, professional, etc.), they are marching against a different environmental society. Moreover, their actions can be seen as anti-environmental.

This study emphasizes the discussion around the teaching activities of environmental education and how they are presented in the present-day context of a global economy. Its purpose is also to describe common geographic approaches and contribute to the study of the environment pay attention to how such contents are covered in the classroom. Guided by a truly critical epistemological base, to achieve these goals we discuss some examples of teaching activities that are also flexible and applicable to the diverse Brazilian school realities. We are aware of the ongoing educational space changes. And by doing so, we proceeded based on the historical-dialectical materialist method.

We will present some important elements of an alternative environmental practice and theory that is committed to the concrete reality, and not only with the small everyday actions. This, despite a conservative and ineffective environmental education (in its transforming principles). In doing so, major contributions of geography education to environmental education emerge. Its role towards a theoretical-practical construction of the knowledge that is close to the students' daily lives, also emerges. The result is that these students start to understand the ideologies and the power relations of the increasing environmental degradation.

Brazilian educational and environment situation: legal aspects and prospects for change

Questioning is necessary if we want some real transformation in the current socio-environmental context. A thorough examination of the current model of nature's domination implies questioning the capitalist mode of production. It is necessary to place a vehement criticism towards this type of social organization, in favor of a broad socio-environmental vision. And to include all those historically excluded in the debate is also imperative. Paradoxically, despite carrying another type of healthier environmental relations, these people are often seen as an obstacle to progress. For this reason, they have been suffering from intense exploitation and domination.

First, it is necessary to question the concepts of development and progress. They are usually based on a non-sustainable attitude towards nature. In presenting these problems, the mass-media coverage does make a mostly descriptive and uncritical work.

The education process can be strengthened throughout pedagogical practices and science to withstand this reality. Indeed, the commitment to critical education is therefore a political, ideological, and transformative struggle. "Asking for whom and for what education is addressed raises a fundamental question which is at the heart of the so-called environmental education" (Brügger, 1999, p. 76). Geographic Science has an important role in understanding socio-spatial reality. This scenario can follow both an unequal and excluding pattern, as well as other diverse and emancipatory possibilities.

The previous statement call for an adequate analysis of the role of geography in environmental education. Understanding the regulatory public policy and the legislation, which can be both formally and informally, and at the federal, state, or municipal scales, is a step towards this goal. Now, the dialectics found in the society, education, and environment triad become a tool to grasp all the interests involved. It can highlight the concerns of the dominant group in the political-economic power relations sphere. But unfortunately, education ends up following the very same bureaucratic principles. Pedagogical spaces, despite that, can foster some type of subversive practices. They grow into an important place for struggle and socio-spatial transformation.

It is also important to underline that the Federal Constitution of 1988 introduced in the country's history a specific chapter that states that "everyone has a right to an ecologically balanced environment, which is for common use and is essential to a healthy life quality" (Brasil, 1988, Art. 225), imposing on government and society the duty to defend it and preserve it for present and future generations. Among other competencies, there is also the promotion of "environmental education at all levels of education and public awareness for the preservation of the environment" (Brasil, 1988, Art. 225, §1º, Item VI).

Under the terms of the 1996's Brazilian Education Law¹, is also a requirement that the basic education system and curricula encompass knowledge of the natural world (Brazil, 1996).

¹ Law No. 9.394 of December 20, 1996.

The basic principles of environmental education present in the 1999's National Environmental Education Program² are: maintain a humanist focus, conceive the environment as a whole, grasp the pluralism of ideas, watch for the assurance of the educational processes continuity, and prioritize the ethics and critical evaluation. The application of such principles in different pedagogical spaces is guaranteed from early childhood education to higher and professional education (Art. 9). But also in informal education, through projects integrated between public-private institutions. Both operate at the federal, state, and municipal levels (Brazil, 1999).

The National Curriculum Parameters (Brazil, 1997) defines the study of the Environment as one of the cross-cutting themes that encompass ethics, health, cultural plurality, work and consumption, and sexual orientation. This is needed to carry out environmental education in the formal teaching process. Moreover, the planning must contemplate all the existing disciplines and the school must perform its social function, building knowledge and basic values for living together in society (Brasil, 1997).

These topics require adaptations to correspond to the reality of each region and each school. To take environmental issues as an example, it gains a certain specificity inside the Amazonian countryside rubber tree plantations or on the outskirts of a large city (Brazil, 1997).

Lately, the National Common Curricular Base replaces the previously quoted document (Brazil, 2017). The new guiding principles, however, treat the cross-cutting themes as combining themes, and no clear definition of these topics can't be found there. The maintenance of the environment and sustainability issue is indeed present in the guidelines. But there is no such thing as the education or teaching approach, nor is the document clearly showing for what purpose serves its achievement in the classroom.

This change is being considered a real setback in Brazilian formal education. There wasn't a national debate for the approval of this national and crucial document. Besides that, the environmental matter is not well defined, which makes it the target of many ideological appropriations, often conservative ones. Besides, it has a liberal attitude, in particular when regarding the consequences of economic exploitation in the socio-spatial sphere.

Most people do not feel like part of the natural environment. This, and according to the principles of the capitalist mode of production, builds a mindset that only considers the adoption of environmental measures when there is a cost advantage for economic production. The proclaimed consensus denouncing, on one hand, environmental problems, and suggesting how to solve them, on the other, is worthy of suspicion. If there is such a thing, why is it not put into practice an international states and institutions cooperation?

Marques Filho (2016) calls "anthropocentric inheritances" this apathy concerning environmental problems and their educational practices. This heritage would have come from Antiquity and reinforced by the modern-positivist paradigm. As collective intellectual constructions, such inheritances persist throughout generations. They are supported by teleological, biological, and ecological assumptions that place the human being as the latter purpose of the cosmos. With that in mind, a tendency to act as a superior form of life and as an indisputable agent of environmental transformation takes place.

² Law No. 9.795, 1999, and regulated by Federal Decree No. 4.281, 2002.

As Marques Filho (2016) points out, there is great learning to be built in every educational space based on present-day socio-environmental chaos. It comes to be the warning of a huge incomprehension about the alleged benefits of the growing power generation which characterize the capitalist technical-scientific paradigm. He states that has to be made clear through education that the capitalist society cannot diminish or even compensate its own contradictions that it self-proclaimed be able to deal with. In fact, there is just a renewal into even more aggressive phenomena, greater in intensity and its spatial extent.

The education sector will never become obsolete as a possibility of theoretical and practical changes facing this massive challenge. Actually, it comes to be both an image of society and something that shapes it somehow. Paradoxically, these spaces can ensure at the same time the maintenance of the social establishment and the existence of subversive activities regarding the disseminated ideals. The development of environmental education is a key part of this ideological debate. As the environmental issue has always been associated with economic, political, and cultural factors, also the ecological movement itself originated from social struggles (Brügger, 1999).

This raises a question: how to approach environmental education in a critical and questioning manner? Anyway, the answer to this concern must be properly grounded in a dialectical thought that conceives the interactions between society and education.

Major contributions of geography education to critical environmental education

Education has a key role in promoting critical thinking. It needs/has to provide the means which allow students to distinguish the content of speeches. For that matter, Geography is an ideal disciplinary vehicle for environmental education. Despite Geography has been experiencing difficulties within its critical epistemological bases, geography educators need to share the responsibility of teaching about the environment. They need to keep a permanent dialogue with the methods and scientific thoroughness. The ultimate goal is to lay the foundations of the critical construction of knowledge (Kaercher, 2013). The critical paradigm can still be widely explored in educational spaces, as well as becoming effective in the pedagogical proposals realm.

It is necessary to insert alternative approaches in the debate. It would be even an asset to rescue comprehensive methods that help to elucidate causes, consequences, and potential solutions. Overcoming a reductionist perception is imperative. And this also involves overcoming the simplifying hypotheses/trends that prevail in most environmental public debates and also at the educational practices.

According to Oliveira (2006), many naïve views about how to combat environmental problems have led to some awareness. But there are no genuine changes in the way people think and act in the reality that surrounds them. It is necessary to reflect on the interactions between Geographic Science and environmental education in an interdisciplinary work context. The serious environmental consequences of current economic development show this need, as far as socio-environmental degradation is unevenly distributed across geographic space (Fuscaldo, 1999).

Without a thorough theoretical and methodological debate, the socio-environmental contradictions get concealed as part of an increasingly unsustainable system. Within this context, the rescue of the political dimension is also the rescue of environmental ethics. The environmental issue is not only the story of the degradation of nature. It's also the exploitation of human beings (which is also part of nature) for economic and social gains by other human beings.

Some educational activities become ways of contesting the current social model. It is about an exercise that explicitly addresses the appropriation of both human work and natural elements, namely a certain attitude towards the environment that leads to degradation. These actions encourage an overcoming of that false differentiation we hear so much between society and nature, which encourages critical geographical practices to be developed. And we can see here the direct influence of theory on everyday life towards a new and possible way to see the world.

We are living, as Braz (2012) points out, is a conservative and counterrevolutionary time in history. It means that the ruling ideology leads society to some disenchantment with any alternatives to the current model and consequently induces some oversimplification attitude and some opportunism. That is something that makes us believe at the end of ideologies and the end of the need for transformation. To resist, the only path is to find the theoretical-practical system there is capable of overcoming the concrete conditions that make such a reality viable. The same Braz (2012, p. 490), quoting Karl Marx, remember us that “[...] to call on them to give up their illusions about their condition is to call on them to give up a condition that requires illusions”.

At this moment, we need to address the adoption of a specific methodology to delivering some concrete measures regarding the discussion to this point. Indeed, it has a key role in promoting critical environmental education. It is precisely in those learning sites that the aforementioned illusions and alienations, coming often from conservative educational practices, will be overcome. The role of geography in environmental education will also be discussed.

Methodology

To go ahead with the overcoming of mainstream environmental education, it is decisive to commissioning a didactic model to assist the construction of critical pedagogy.

For this purpose, we look for methods based on dialectical materialism, which in this study will be called historical-critical pedagogy. The pedagogical model proposed by Gasparin (2011) serves this purpose. Furthermore, it has certain flexibility to be adapted and be pursued in many educational settings.

Defining the most appropriate teaching materials for each age is indispensable for the elaboration of any kind of didactic and pedagogical planning. In this regard, we decide to work with the high school. The reason is due to the high and refined abstraction level of that Gasparin's proposal (2011).

As for the teaching material, we select two series of books approved by the Brazilian Textbook Program (Brazil, 2018) that educators can keep on hand as a reference. The series are: #Contacto Geografia, by Rogério Martinez and Wanessa Garcia (2016), and Geography, space and identity, by Levon Boligian and Andressa Alves (2016). Among all other books approved by this national program, we have chosen these two mainly because their authors are also geography educators. Moreover, they also are formed by the same institution as me.

By using this material, we aim to grasp how geographical content is distributed in textbooks and how can we put together it, to elaborate our didactic proposal. From them, we look for the best way to connect with the student's everyday life. Only in this way we can build upon this knowledge of critical socio-environmental reasoning.

We insist in saying that we do not agree to take environmental education as a separate discipline or area of knowledge. Nor with any kind of content fragmentation. A key element for the development of proposals regarding environmental education is to set how geography as a discipline can be used in this education rather than how environmental education should be. The activities, therefore, are proposed in an integrated approach, following the curricula and other types of knowledge that are built inside the educational spaces. This makes it possible to insert environmental issues once and for all in the geographic debate and vice-versa. The same is for the presence of this renewed awareness in the everyday life of educators and students.

As mentioned, in Gasparin's methodology (2011) teaching must be grounded on a critical and historically informed method that must address the contradictions, doubts, and conflicts inherent in knowledge. It considers indispensable to question, and its starting point is not only the school:

[...] but the broader social reality. The critical reading of this reality makes it possible to emphasize a new pedagogical thinking and acting. Thenceforth, the movement of social reality as a whole is defended towards the theoretical specificity of the classroom and from this to the social totality again. This movement makes it possible to a rich dialectical process of pedagogical work (Gasparin, 2011, p. 3).

Also by this author, the dialectical movement practice-theory-practice takes the information already grasped in a chaotic way (antithesis). Therefore, to the theoretical-methodological abstraction of science (analysis). And finally, it returns to social practice, having now a diversity of critical visions about the studied phenomena (synthesis). In other words, the social practice of individuals (and of society as a whole) is questioned, problematized, and then theorized. Based on that, it is generated essential scientific support that is necessary to transform the understanding of a concealed reality.

The return to practice is now crucial after the critical understanding of reality (Gasparin, 2011). To surpass the practical and immediate type of knowledge of everyday life, there is a need to carry out concrete actions in the considered reality.

After the reasonably systematic reflection possible by theory and by the abstract thought, the student can place himself differently about practice, just because his way of understanding it is different. Consequently, their practice would not be the same either. Their thinking and acting must demonstrate a transformative perspective of reality (Gasparin, 2011, p. 7).

This author follows Lev Vygotsky's historical-cultural theory and the didactic stages proposed in Saviani's (1999) book *School and Democracy*. As a result of this combination, three crucial stages of the didactic proposal under discussion emerged: the starting point in the social practice, theorization, and the return to concrete by the ultimate social practice. The theorization stage has three phases: problematization, instrumentalization, and catharsis.

On Gasparin's account (2011), the teacher's work as a mediator in the teaching process makes the learning process achievable. The students do appropriate and internalize the scientific content in a variety of its dimensions, actively and subjectively. And in this movement, emancipatory pedagogical objectives can be reached.

For the concretization of this didactic process, the educator must work with both the old and new forms of knowledge. Only thus it can be confronted afterward, relating and differentiating them. The school's bureaucracy can't be a barrier to the planning proposal. The education process should be implemented at first based on the socio-environmental problems present in the community the students live in.

Following Gasparin's (2011) work, our call for action during this process can contribute to the socio-environmental problem to be identified. Regarding the student's and educators' life, it is necessary to integrate scientific research with everyday life among all those involved in the educational process. We now come to the concreteness realm of environmental awareness. And after all, we shall address the final theoretical-intellectual synthesis, and the change-inducing practices will become tangible.

A comprehensive model (Table 1) of this work project that aims to steer teacher and learner alike is presented. It follows the historical-critical perspective presented before that shall provide the theoretical-methodological basis, some guidelines, and necessary motivation.

Table 1 - Didactic model in the historical-critical perspective

Practice (Current Development Level)	Theory (Immediate Development Level)			Practice (New Current Development Level)
<i>Initial Social Practices</i>	<i>Problematization</i>	<i>Instrumentalization</i>	<i>Catharsis</i>	<i>Final Social Practice</i>
1 List of objectives and content 2 Everyday life experience of the content: <ul style="list-style-type: none"> • what does the student already know? • challenge: what else would he like to know? 	1 Identification and later discussion of the major problems highlighted by social practice 2 The content's dimensions to be worked on	1 Educator and learners actions to the construction of knowledge. Student-object of knowledge relationship through teaching mediation 2 Human and material resources.	1 Synthesis's theoretical elaboration 2 Synthesis's practical expression	1 Student intentions. Manifestation of the new practical posture 2 Student actions. New social practice of content, as a function of social transformation

source: Gasparin (2011, p. 159).

Note that the definition of goals should always consider and clarify for students: what to study, the main concepts to work with, the political-ideological perspective, the methodological and theoretical approach, and the reason why to learn such content. As well as the concrete practical application and its purpose to everyday life.

This didactic stage does not follow a deterministic logic. They are related to each other. So the didactic approach tries to strive to motivate students to be lifelong learners. Starting from the student's practical life, they get involved in the acquisition and uses of knowledge from his own experiences. This of the subjective embodied process of (re) signification and (re) construction.

This is a complex and challenging didactic-pedagogical proposal. To be achieved, it needs the teachers' critical reasoning to overcome the ruling traditional practices in education. The procedure can actually encourage a different, broad, and questioning point of view of today's environmental problems. It can also generate reports, information, (positive and negative) results, and valid contributions to the broader debate about environmental education and could also strengthen some critical and diverse practices in geography's education.

When addressing socio-environmental content in this way, a political-economic-educational system reformulation is mandatory. This duty is not the responsibility of the teacher alone. The education problem involves the entire society, as we know. The realignment of the educational system alongside the transformative everyday actions is undoubtedly a dialectical process. They are intrinsically linked as a necessary step towards unexplored possibilities of new social practices. We show next to the pedagogical proposals for environmental education that contribute to set these practices in geography education. These examples were elaborated based

on Gasparin's methodology (2011) and follow the socio-environmental transformation and the production critique of space principles.

Results and discussion

After content analysis of the chosen textbooks, we selected major geography themes, with priority to those of greater presence in the teaching curricula of basic education. In doing so, the two series of books tabled a great approximation to the geographic science's contents. Unfortunately, they also present little or complete lack of the environmental education theme.

In Table 2, a summary of the textbooks' environmental education content approved in the Brazilian Textbook Program (Brazil, 2018) is shown. In particular, 26 textbook chapters or sections were examined.

Table 2 -Environmental education topics in high school geography textbooks

	chapters or sections	percentual (%)
Address environmental issues in a comprehensive, in-depth, and satisfactorily manner	6	23.1
Textbooks present a conservative approach with insufficient information, just describing the major topics of environmental education	11	42.3
Textbooks do not present any information or even mentioning socio-environmental related themes as nature's degradation or another recurring content in present-day environmental education	9	34.6
Total	26	100

source: prepared by the author.

The socio-environmental issues were too superficial in approximately 23% of the considered content, mainly when addressing the origins of the current environmental condition. They do not address correctly the issue and preclude the grasp of deeper causes. Besides, they do not wade into the capitalist relations of production broader discussion.

To this point, it should be evident that common geographic approaches to the study of the environment do not consider its modern context. Nor its developments throughout the history of the capitalist production of space. We insist that by doing so the possibility of a critical and groundbreaking perspective is excluded. This educational practice serves therefore to reproduce the traditional and conservative approach to socio-environmental education and its consequences. The full involvement of educators and researchers is crucial. This engagement can be in an academic context, in the deep theoretical debate, or the more practical proposals, being at geographic and environmental education or not. The main condition is that changing the social reality has to be a priority.

The proposals

We shall put forward some examples or proposals of an engaged environmental education. In this framework, the place of geography comes to the fore in an effective environmental education. Also important is to stress the didactic material plural of content and its application either in everyday life or within a scientific ambiance. There are several possibilities for the movement that starts in the student's reality, concerns the abstract thought, and then returns to the concreteness of everyday life.

The following pedagogical proposals were planned according to Gasparin's methodological-didactic model (2011, as we mentioned before. There, one for each year of high school. We chose three of them, one for each year of high school. The reason for this number is because they encompass all the curricular years that the proposals stand for. As a result, they make it possible to merge environmental discussion with the constantly addressed subjects in geography classes.

1st proposal

Subject: Geography

Content: Climatology

Topic: Climate, weather and climate change

Series: 1st year of High School

50-minute credit hours: 16

General goal: To understand the dynamics of climate and weather and the causes and consequences of climate change under human activities.

Specific goal: To identify the differences between climate and weather; discuss the cyclical behavior of climate and its major events; to understand the geographical importance of the climate for humankind; explain how humanity can interfere in climatic dynamics and the origin of these interventions; relate climate change with the current capitalist mode of production; explore the global warming debate asking about the human participation; sum up current climate change impact and what to expect in an even worse scenario; search for solutions.

Subtopics: Climate and weather definitions of; seasonal dynamics (seasons, monsoons, etc.); importance for human activities; anthropic interference; global warming; consequences of climate change; alternatives to decelerating changes and mitigation.

Initial Social Practice:

1 – List of content and goals

2 – Experience: What is the region's climate? What is the region's weather? And the country's predominant climate? Do extreme events occur? And in the rest of the world? Do you notice any climate change? Is there air pollution? Are there differences between the rural areas and cities?

Challenge: What is global warming? If it's an actual phenomenon, what causes it to happen?

Problematization

- 1 – Main questions: What's the difference between weather and climate? How the dynamics of weather and climate events can be identified? And for Brazil? Why are climate and weather important for human beings and why is it important to the geographic space formation? What techniques are used most? Are there some forms of prognostication? Do human activities interfere with and pollute climate? Is climate change interlinked with the capitalist mode of production and consumerism? What's the current level of degradation of the atmosphere today? What are the prospects? What are the differences between the countryside and cities? What are climate agreements for? Are they functional and respected? What are the methods to suppress this situation?
- 2 – Content dimensions: Scientific/conceptual; socio-environmental; historical; economic, political, aesthetic, religious, and ideological.

Instrumentalization

- 1 – Teaching and student actions: Dialogical exposition; reading text; debate; search; exercises and use of maps; weather observation, climate forecasting and measurement of rainfall; simulated jury about whether or not of anthropic global warming.
- 2 – Human and material resources required: Educator; students; handouts; books; maps; news from the local, national, and international media; historical climate records; images and videos; and weather forecasting instruments.

Catharsis

- 1 – Synthesis's theoretical elaboration: To understand the distinct elements and dynamics of climate/weather; to highlight the great importance of these for survival and human development; to identify the main forms of climate change and pollution, as well as their linkage with the coming of industrialization and the capitalist mode of production; to recognize of the industries and global trade impact; to name specificities of the countryside and cities, heat islands, thermal inversion, acid rain, the importance of vegetation coverage, etc.; to accent the greenhouse gases and global warming effects (causes and consequences); to emphasize signs of greenhouse gas increase around the world and prospects of forthcoming scenarios; to highlight the degree of effectiveness of unilateral climate agreements; to speculate about which activities should be changed.
- 2 – Synthesis's practical expression: To gather a simulated jury to judge 1) if there is global warming, 2) the consequences of the "natural" global warming and 3) the global warming as a consequence of human activities.

Final Social Practice:

- 1 – Students' intentions: To become better acquainted with content; to reconsider everyday attitudes of air pollution; to admit the relation among different forms of climate pollution; to recognize the importance of climate/weather to human life; to pursue a better understanding of global warming and corporate intentions debate; to go further into detail on the conflictory relationship between the capitalist economy and climate-friendly agreements; to find transform future perspectives.
- 2 – Student actions: Read more about the subject; search for more news; talk to other people outside the school environment; research on legislation literature; pay attention to family members and close people everyday life; analyze the climatic environmental conditions according to the socio-productive activities developed in the city and nearby areas.

2nd proposal

Subject: Geography

Topic: Urban Geography

Topic: Cities, the urban and their socio-environmental issues

Series: 2nd year of High School

50-minute credit hours: 20

General goal: To understand the global broader urbanization process and the Brazilian's case. The student has to relate it to the unequal socio-environmental production of space.

Specific goal: to apprehend the evolution of cities in the world and Brazil; distinguish the urbanization's phenomenon; differentiate urbanization between colonizers and the colonized countries; detail the varied use and socio-productive activities that constitute the urban environment; discuss the socio-environmental problem that influences the quality of life in an urban context and that causes environmental problems.

Subtopics: The first cities and their spatial and historical evolution; the different types of the city; the phenomenon of urbanization; the first cities in Brazil and the occupations concomitant to colonial economic cycles; sped up and uneven urbanization; the diversified use of urban space; socio-environmental inequalities and living conditions - precarious housing and basic services, infrastructure and accessibility, socio-spatial exclusion, gentrification, urban voids, and real estate speculation, verticalization, right to the city, waste generation, pollution, green areas, erosion, silting, waterproofing ground, heat islands, etc.

Initial Social Practice:

- 1 – List of content and goals
- 2 – Experience: How were cities born? What are the differences between city and urban area? Do more people live in urban or rural areas? What do people do living in cities? What is the quality of life in cities? Is there inequality in our city?

How does it happen to be? What are the major causes? Is nature respected in the urban context?

Challenge: Why are there empty spaces in the city? Where does city pollution go? Are there any ways to build the urban area?

Problematization

- 1 – Main questions: How did the first cities appear in Brazil and the world? How are socio-productive activities associated with the possibilities of urban agglomeration? What types of cities exist? What does urban mean? How is it connected with the post-Industrial Revolution capitalist-bourgeois way of life? How did urbanization develop in the colonized countries? And in Brazilian's case? What are the main urban land uses? Are these the activities that constitute this environment? What is the quality of life in big cities? Are there socio-environmental inequalities in cities? If yes, what are they? Does everyone have the same living conditions? How can they be transformed? How does the pursuit-of-profit way of the capitalist mode of production interfere in urban space?
- 2 – Content dimensions: scientific/conceptual; socio-environmental; historical; economic, political, aesthetic, religious, and ideological.

Instrumentalization

- 1 – Teaching and student actions: Dialogical exposition; reading text; debate; research; exercises and use of maps; fieldwork in school's neighborhood.
- 2 – Human and material resources required: educator; students; handouts; books; maps; news from the local, national, and international media; images and videos; maps; passbooks, cell phones (for photographs), and appropriate clothing for fieldwork.

Catharsis

- 1 – Synthesis's theoretical elaboration: to understand dynamics of city formation worldwide and in the particular case of Brazil; to trace the interconnection between socio-productive activities and the constitution of the city; to distinguish the types of cities; to grasp the urban context establish together with capitalist industrialization; to distinguish between urban settlements by the colonizers and the colonized, highlighting all the inherited inequalities (Brazilian case); to detail land use/occupation and the types of urban activities; to link the possibility of quality of life in cities to the capitalist economic logic; to understand socio-environmental inequalities and degradation as unavoidable side-effects of this logic of accumulation; to comprehend the

production of the urban capitalist geographical space that mirrors capitalist mode of production very nature; to search the reason why the pollution and environmental impacts are being disregarded.

- 2 – Synthesis practical expression: field books (provides a view of the route's characteristics) and photography contest.

Final Social Practice:

- 1 – Students' intentions: to know better the subjects; to understand the interconnection between the capitalist mode of production and the rise of cities as a commodity; to ponder alternatives to urban environmental degradation.
- 2 – Student actions: reading more about the subject; searching for more news; talking to other people outside the school environment; researching on legislation literature and actively take part in the making of town plans and similar; concentrating on family members and close people everyday life; critically analyzing the possibilities of socio-environmental transformation; searching for developing theoretical-practical emancipation.

3rd proposal

Subject: Geography

Contents: nature, society and socio-environmental problems

Themes: global socio-environmental degradation under the capitalist production of space

Series: 3rd year of high school

50-minute credit hours: 20

General goal: to detail the many forms of environmental degradation, their connection with the capitalist production of space, and how they threaten every single life on earth.

Specific goal: to conceptualize environmental degradation and its intrinsic bond with social life; to relate capitalism and production of space to socio-environmental crises and its development contradictions; to detail and debate the existing forms of environmental degradation on distinct scales, and the forthcoming consequences of their aggravation for humans' future generations, and all other forms of life.

Subtopics: what is environmental degradation and how is it intimately linked to social life; the prevalence of capitalist production of space based on the exploration, degradation, and extinction of all life forms; the contradiction between the current capitalist development of and the social and environmental collapse; the various forms of environmental degradation and their ceaseless worsening; deforestation; water quality; soil's health, food insecurity; waste disposal problems; effluents and industrial pollution; the costs of fossil fuels; climate changes; demographic problem; biodiversity loss; large-scale large undertakings (hydroelectric and power plants); urbanization, etc.

Initial Social Practice:

- 1 – List of content and goals
- 2 – Experience: What is environmental degradation? What is social degradation? Are they connected? Do you notice these degradations daily? What key problems do we face in cities (excess of garbage, flooding, air pollution, rising temperatures, etc.)? Has the environmental situation always been like this? Is it getting better or more acute? Why is it happening? What broadcast news do we see the most regarding environmental problems? How to change this situation?

Challenge: Are environmental problems random or can they be avoided? How would it be done? Will we be able to solve them with technology? Why haven't we improved the environmental conditions of our life in society to this point?

Problematization:

- 1 – Main questions: What is environmental and social degradation? How do they befall? What is the connection between the capitalist production of space and the occurrence of environmental problems? Why are natural elements treated unsustainably as resources since we depend on them? What types of degradation and exist environmental issues? Do they vary according to the regions of the planet? What human activities are they related to? Do they interfere in other living being's lives and the planetary biological dynamics? How to change this situation?
- 2 – Content dimensions: scientific/conceptual; socio-environmental; historical; economic, political, aesthetic, religious, and ideological.

Instrumentalization:

- 1 – Teaching and student actions: dialogical exposition; reading text; debate; research; exercises and use of maps; work with thematic maps under cartographic rigor, to highlight neighboring socio-environmental problems in student's everyday life context.
- 2 – Human and material resources: teacher; students; books; books; news from the local, national, and international media; images and videos; maps and art material for the making of thematic maps.

Catharsis:

- 1 – Synthesis theoretical elaboration: grasping the characteristics of degradation for environment social life and how they are related; deepening about the causes of these impacts and how they are linked to the socio-productive capitalist relations as something manifested in the production of space; understanding all the contradictions involved in the human-natural elements relation under the

capitalist rule; detailing the types of degradation/environmental problems described by reliable data and their occurrence across the planet; co-relate socio-productive activities (agriculture, industrial production, mineral and other natural resources extraction, construction of large-scale transport and energy generation works, extraction and fossil fuels consumption, urban agglomerations, etc.) with its resulting environmental degradation; study of the impact on all existing life forms and on the complex interrelated and interdependent dynamics of the planet; evaluation and positioning considering the search for changes and another scenario.

- 2 – Synthesis's practical expression: thematic maps on environmental issues in the students' neighboring quarters.

Final Social Practice:

- 3 – Students' intentions: to better know the content; to understand the capitalist mode of production and the consumerist way of life interconnected nature and its concrete expression in an uneven production of space; to delve into the environmental impacts contradictions, and grab the scale of the problem, from everyday life scale to global.
- 4 – Student actions: more read about the subject; more search for news; research on relevant legislation literature; research for reliable data sources about contemporary environmental issues; talking to other people outside the school environment; monitor and analyze the behavior of leading figures in this debate; to critically evaluate the news, the media's and capitalist institutions' role, under the various scales of space production and environmental degradation, associating socio-productive activities with environmental impacts; find ways for conjoined and organized actions, taking advantage of legislation literature, academical works, and experience that aims transform the worst and maybe irreversible future scenarios.

It must be observed that, according to Gasparin's methodological guidelines, we adopt the necessary flexibility for activities to be executed. We kept the specificity of pedagogical proposals for each specific school reality. Of course, we do not intend to exhaust the possibilities of a critical approach to these contents or to become bound to a pre-determined methodology or a scientific-epistemological orientation. Instead, we aimed to present new workable ideas and possibilities according to each pedagogical scenario. And for the geographic education committed to the socio-environmental transformation, these examples gave must be suitable.

Concluding remarks

The dialectical materialism method guided our reasoning hitherto. This's mainly because of their broad and assertive theoretical approaches to the major themes presented here.

The importance of critically examine the problems concerned is shown in the results of the socio-spatial potential transformation, that goes from the abstraction realm to the concrete transformations in everyday life. Geographic Science, as a disciplinary vehicle of research and action on environmental themes, highlights the educator's role that, through an engaged and combative stance, can create more meaningful and close to the students' pedagogical activities by relating their everyday life to the scientific approach.

Environmental education addressed in Geography classes is essential. Theoretical-practical transformation in this theme is directly associated with the fundamental change of traditional teaching. In this work, we inferred that the predominant approaches in current environmental education reinforce the capitalist economy and its social relations. As one may observe, the approaches held so far have been characterized by a conservative and reckless attitude towards environmental degradation. By blaming individual practices, the educational environmental debate becomes superficial and irrelevant, a situation is proven by the state of affairs of those contents that have been analyzed in geography curricular textbooks.

The pedagogical proposals developed can be considered solidly based models for more comprehensive pedagogical constructions. It is also adaptable to different school realities in environmental and geographic education. They are ways to materialize transformative requests of the socio-environmental context promoted by capitalism in any pedagogical space. Definitely, from them, we can move towards a deeper critical construction of knowledge and the development of a more complex thought of those involved.

The organization, creativity, and elaboration of pedagogical practices should preferably attend and adapt to the school reality both subjectively and objectively. They must contemplate the needs of the students' immediate reality, starting with their experiences and the material possibilities inside or outside the school environment. It is expected that the educator will be inspired by such proposals, feeling free to modifying or adapting them to his working surroundings/reality.

And finally, in search of a plural and questioning geographic education, the capitalist production of the space needs a more comprehensive and in-depth examination. One that is immersed in socio-productive and spatial relations, capable to understand how degradation and socio-environmental exclusion are made up. Of course, this knowledge must be built together with students. An integration between geographic and environmental education can certainly bring emancipating benefit. Honestly, this merging is crucial to both surpass the traditional and superficial education status and to give students critical and transforming tools for facing life in all of its dimensions.

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