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Research Article

Bridging Geopolitics and Environmental Issues in Geography Education: Exploratory Teachers' Insights from France and Israel

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Abstract: The relationship between environmental issues and politics is underrepresented in geography curricula. This study explores the challenges associated with integrating environmental issues within a political framework in geography education and puts forward a case for their inclusion in teacher development. The present study is predicated on an analysis of the intended and the achieved curricula. A comparative analysis of the curricula, complemented by interviews with a total of 20 teachers, in France and Israel, led to the identification of common barriers. The analysis revealed that both countries' curricula incorporated environmental geopolitics and that the teachers recognised the link between environmental and political decisions. However, they mentioned few local political aspects, and most of them were unfamiliar with this connection from their prior studies. Despite the limited time allocated to the subject, teachers incorporated these topics out of a sense of mission. The paper proposes a model to facilitate the integration of environmental geopolitics into teaching practice.

Keywords: Geography Education; Environmental Studies; Geopolitics; Teacher Training; Teaching and Learning (T&L)

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Highlights:

- Teachers interviewed in France and Israel recognised links between the environment and politics.
- There is no consensus on how to include these topics in the curriculum.
- Israeli teachers discussed global politics more openly than French teachers.
- French teachers focused on local issues, avoiding political aspects.
- All the teachers required better training in geopolitics for effective teaching.
- A theoretical model that would enable teachers to teach environmental geopolitics is proposed.

1. Introduction

Environmental studies investigate the natural environment of Earth. They explore the impact of human activity on the natural environment and include the scientific study of environmental change. The power dimensions of environmental issues encompass a range of critical areas, including water resources, endangered species, environmental legislation, land use, nuclear energy, and the management of environmental disasters. The contemporary global context has led to a convergence of environmental and political spheres. The study of these subjects may involve examining the circumstances of environmental problems, either in the aftermath of an environmental disaster or from a prospective point of view. Conflicts over resources are intricately linked to economic, political, and military power dynamics. Addressing these challenges requires a comprehensive understanding of these interrelationships. Informed decision-making and policy development are crucial for navigating these complex issues. It is essential for students—future decision-makers and citizens—to understand these complex interrelationships.

It is vital to recognize that environmental concerns are inherently global, as are the strategies necessary to address them. Geopolitics, as an academic discipline, examines the interactions between political decisions and geographical factors, as well as their reciprocal influences. These interactions are ongoing and dynamic. The field encompasses considerations of place, space, and time (O'Reilly, 2019) and spans local and global scales. A significant focus of geopolitical studies is on issues of conflict, power, and sovereignty, as well as the role of regions, states, and nations.

The scientific literature on the relationship between geopolitics and environmental issues remains relatively limited. Consequently, one of the primary objectives of this article is to contribute to the cultivation of a geopolitical awareness and to provide insights for decision-makers and the public mainstream (Morgado, 2023). Previous research collaborations (Yaar-Waisel & O'Reilly, 2022; Yaar-Waisel et al., 2023) conducted studies on geography teaching and geography teacher training on geopolitical or environmental issues. Their findings demonstrated that comparisons can provide encouragement about our position and capabilities, as well as highlighting shortcomings and challenges to be overcome. The aim of the present study was to explore how teachers engage with environmental geopolitics and to suggest ways to improve teacher training. To this

end, we selected two countries for closer examination: France and Israel. Despite the French and Israeli education systems' divergent characteristics, remarkable congruity was observed in the way secondary school teachers approached the challenges of teaching these subjects. A recurrent theme in both countries was the necessity to differentiate between environmental and political issues in the curriculum, a distinction that does not fully reflect the current global context. The following two research questions provided the structure for this study:

Research question 1: Is the geopolitical dimension of environmental issues currently taught in middle and high schools?

Research question 2: What improvements could be made to the geography curriculum regarding the relationship between environmental issues and geopolitical influence?

To conduct this exploratory study, we analysed geography and geopolitics curricula in Israel and France and interviewed 10 teachers in each country. The analysis revealed the challenging nature of teaching environmental issues and geopolitics, often complicated further by a lack of enthusiasm. Both subjects have been shown to lead to obstacles and conflicts in the classroom. We begin by identifying the epistemological, didactic and pedagogical issues relating to environmental geopolitics: first, by exploring the challenges of integrating geopolitical and environmental discourses and second, by examining the pedagogical challenges facing teachers when addressing environmental geopolitics. The methodological section outlines the research approach, followed by a proposal for an intended curriculum. We analyse current programmes and teachers' perspectives, followed by a discussion of the findings. The paper concludes with recommendations and implications for future research and practice.

2. Teaching Environmental Geopolitics: Confronting the Educational Challenge

2.1. Integrating Geopolitical and Environmental Discourses: Approaches and Challenges

Policy makers and decision makers are aware of the relationship between the environment and politics. The issue was first raised during the Cold War era and has remained a topic of discussion ever since. A significant development, during that period, was the establishment of a joint research institute for the USA and the USSR in Austria in 1972: the International Institute for Applied Systems Analysis (IIASA). The objectives of this institution were twofold: first, to investigate issues of global concern, including water pollution and energy production, and second, to propose solutions to these issues. Concurrently, the urgent need to address the imminent threat of climate change began to take shape (Hasson, 2023). The exercise of political power is inextricably linked to the assertion of state power, reflecting the imposition of territorially defined regulations and control. The notions of state sovereignty and the delineation of boundaries serve to illustrate this point. State power is a necessity in both domestic and international contexts, encompassing geopolitical and diplomatic activities. The decision-making processes and ensuing dissemination of information have a considerable influence on the political sphere of environmental affairs. The role of the media in controlling information, serving interests and presenting a selective picture is also a key consideration. In this regard, O'Lear (2010; 2020) proposes an expansion of our conceptual framework beyond the boundaries of the state due to the global information society.

The inherently political and geopolitical nature of environmental challenges, manifesting at the local and the global scale, e.g., climate change, underscores the necessity for a cross-border approach, with collaborative endeavours to manage them effectively. However, it is crucial that these issues be addressed with complete transparency (Yaar-Waisel, 2018). In the political sphere, two distinct approaches can be identified when addressing environmental concerns. The first approach involves the depoliticisation of the debate to facilitate the forging of a social consensus, while the second approach contrasts with the politicisation of the discussion (Pepermans & Maesele, 2016). The nature of environmental policy is contingent upon the prevailing political system of a given country. Hasson (2023) demonstrated the pivotal role of democratic institutions in addressing environmental challenges, such as the climate crisis. Democratic institutions are recognised as being more receptive to new evidence and as aiding decision-making processes that are informed by scientific facts rather than by the opinions of leaders or the ruling classes (Hasson, 2023). This is crucial in addressing the climate crisis. The enactment of climate legislation has been shown to facilitate constructive dialogue between the scientific community and the political sphere (Hasson, 2023). Environmental policy concerns the processes that define human relationships with the environment, encompassing property rights and the recognition of toxic substances and their impacts (O'Lear, 2010). In addition, it encompasses discussions, debates and struggles within established government and environmental management systems (O'Lear, 2010).

Constructing a narrative of external threats to the state, including environmental and resource issues, serves to distract from the role of politically and economically powerful actors in environmental degradation within and beyond their political boundaries (O'Lear, 2010). Indeed, governments, businesses and consumers in developed countries attempt to deflect attention from their own consumption and pollution levels by identifying or emphasising threats emerging in other regions.

The relationship between environmental challenges and conflict remains a subject of significant discourse. In this regard, Ide (2016) advances a series of five contentions to refute this association, which he deems to be perilous. The following arguments are presented in support of this assertion:

- Argument 1: This association discredits environmental research and the influential reach of political activism.
- Argument 2: This association discredits economic and political issues by rendering them less politicised.
- Argument 3: This association contributes to the observed increase in military investment.
- Argument 4: This association tends to promote interventionist policies established by countries in the Global North regarding countries in the Global South.
- Argument 5: This association lends support to the notion that some countries are unable to address environmental issues.

While Ide's contentions highlight the complexities and potential dangers of associating environmental challenges with conflict, it is equally important to examine the ethical dimensions that emerge from the implementation of environmental policies. Ethical concerns arise particularly regarding the allocation of resources and manifest in two distinct ways: First, they have been shown to contribute to the emergence of problems and second, they shed light on how to solve these problems. This prompts the question of historical responsibility for the crisis, as well as how to identify the most suitable parties to implement solutions in the future. There are significant disparities between countries. Those nations experiencing economic disadvantage and heightened vulnerability to climate-related disasters are likely to encounter protracted recovery challenges, particularly in Asia and Africa. When developed countries experience natural disasters, their economic position and societal resilience enable them to repair the damage more easily. In the interest of global justice, a unified, global response is essential. Consequently, environmental policy and

associated geopolitical matters are founded upon values, prospective initiatives for society and potential future scenarios. This aspect complicates the incorporation of such political issues into classroom discourse.

It is not necessarily appropriate to consider climate change from a global perspective. Energy issues are closely related to food supply and waste, and toxins represent a significant threat to the human body. However, governments are not addressing these issues adequately. There is no single, universally applicable approach to tackle them, and the most effective deployment method depends on the specific circumstances. Despite the well-established relationship between politics and the environment and the extensive research on environmental changes, including climate change, these topics remain challenging for teachers due to the involvement of political influence and its implications. Environmental geopolitics is characterised particularly by two features: first, it is socially sensitive and second, it is related to citizenship education, specifically to global citizenship.

2.2 Teaching Environmental Geopolitics: A Socially Acute Question

The field of environmental geopolitics raises several acute social questions, as shown in studies by Legardez and Simonneaux (Simonneaux & Legardez, 2010; Legardez et al., 2022). Acute social questions can be defined by four key characteristics. First, there is no scientific consensus on these topics, and values and ethics are involved. The debate on genetically modified organisms (GMOs) highlights this. Supporters stress the safety record of GMOs and their potential to boost global food security, particularly in poor nations. Opponents, following the precautionary principle, call for more research to ensure the safety of GMOs for human health and biodiversity. This debate goes beyond science, touching on fundamental societal concerns. Second, acute social issues spark societal debate. The GMO discourse, for instance, reveals a clash between capitalist, liberal views supporting free trade, and environmentalism focused on nature preservation. This has led to restrictions or bans on GMO imports and farming in some countries. The EU's 1999–2003 moratorium, later ruled unlawful by the WTO, and subsequent environmental NGO criticisms, illustrate this complexity. Media coverage of GMO debates and geopolitical conflicts is extensive, marking the third characteristic of acute social issues. These issues significantly shape media narratives around societal concerns. Fourth, these social issues impact educational institutions and are often integrated into curricula following students' questions. GMOs, for example, are discussed in science and geography courses. Educators must be prepared to handle these sensitive, unresolved topics.

The present environmental and sustainability issues give rise to many critical and acute social questions, a considerable number of which are geopolitical in nature. One such question is whether the exploitation of resources in the Arctic should be authorised. A similar question is raised by the proposal to designate the Amazon as a protected area, which has gained favour as a potential solution to these challenges. Another significant issue is the increase in air transport, among other factors. Addressing these pressing social concerns demands educational responses that extend beyond content-based learning, aiming to cultivate new learning outcomes and teaching strategies. Despite the prevalent awareness of these issues, young people's capacity to analyse climate phenomena and comprehend environmental concerns remains deficient (Naudet, 2022).

A geopolitical approach to environmental issues falls under the umbrella of education on sustainable development. While this assertion is not erroneous, it lacks specificity. The geopolitical perspective on environmental concerns is better situated within an emancipatory citizenship education framework for students. In their edited volume, Leininger-Frézal and Souplet (2022) distinguish between two forms of citizenship education: one that promotes citizenship through adherence and another that fosters citizenship through engagement. The emphasis on adherence in citizenship education conveys the national narrative of a country. The objective of such education is to provide students with a specific understanding of the nation's history, geography and role in the global context. Conversely, the objective of engagement-based education is to cultivate citizens who can comprehend the world, ascertain their role within it, as individuals and community members, and act in accordance with their personal beliefs. The geopolitical approach to environmental issues in educational settings aligns with this more engaged form of citizenship education, aiming to instil in students the qualities of active and informed global citizens.

2.3. Global Citizenship Education

Geopolitical analysis can be applied at the local level, but its primary objective is to assist students in understanding the interdependencies between different populations concerning environmental, economic, social and political matters. This understanding firmly situates the geopolitical approach to environmental issues within the domain of global citizenship education. Global citizenship education can be defined as a sense of belonging to a broader community and a recognition of shared humanity. The approach emphasises the interdependence and interconnectedness of political, economic, social and cultural factors at the local, national and global levels (UNESCO, 2015). Education for global citizenship is inherently intertwined with education for sustainability (Maastricht Global Education Declaration, 2022).

The geopolitical approach to environmental issues supports the goals of global citizenship education, which aims to develop knowledge and critical thinking about interconnected global issues, foster a sense of shared humanity and responsibility and encourage effective action for a more peaceful and sustainable world (UNESCO, 2015). This approach represents an ambitious educational endeavour aimed at cultivating complex thinking (Morin, 1990). The study of environmental geopolitics enables students to analyse the changing relationships between societies and their environments, highlighting the complexity of the interactions between environmental exploitation and protection. It encourages them to see environmental issues as global issues, where local actions have global consequences and vice versa. To achieve this, pedagogical and didactic strategies must be tailored to socially salient issues. Levinson (2017) states that dealing with these tasks requires activities that encourage critical awareness of the political knowledge and skills manifest in all democratic processes, giving the example of the need for clear comprehension of conflicts that may arise concerning individual rights and distributive justice. These activities must also take into consideration the fact that political action incorporates possibilities and limits—conflicts between stakeholders and the insight that moral outrage motivates action, demanding a rational understanding of conflicts of interest (Levinson, 2017). To facilitate this type of activity, Levinson proposes six principles for engaging students in meaningful learning activities through which they can understand socially relevant issues more easily (Levinson, 2017).

- Perceive students as a data source—as active respondents and co-researchers.
- Encourage students to engage with the learning material as creators of knowledge.
- Relate to students as co-authors.
- View intergenerational learning as a form of participatory democracy.

Levinson's principles, which emphasise the active role of students in understanding socially relevant issues, have been a seminal source of inspiration for the development of frameworks for political education. These frameworks aspire to integrate complex thinking and participatory democracy into the curriculum, thereby ensuring that students are well equipped to navigate the intricacies of political and social landscapes.

In a recent publication, Angela Barthes (2022) proposes a set of guidelines for developing a curriculum for political education. In doing so, she sets out curricular markers. Lange and Victor (2006) define a curricular marker as 'a landmark that we set for ourselves in order to achieve an educational goal'. A curricular marker is predicated on meticulously deliberated and substantiated criteria. From a pragmatic standpoint, the formalisation of a curricular marker is relatively straightforward, entailing the delineation of levels for each educational objective, ranging from complete absence to full achievement. Barthes' conceptualisation of the curricular marker in the context of education is as follows:

- The capacity to decode the epistemological construction of knowledge is vital. Different types of knowledge, such as scientific, professional and experiential knowledge stem from different sources and are valid to differing degrees.
- The capacity to recognise the multi-referential nature and reality of social relations. Stakeholders may disagree following conflicting issues, strategies and values.
- The capacity to adopt a societal perspective to address a problem. To approach the matters at hand, the complex causalities and interactions between the factors involved are considered, together with potential risks and possible future scenarios.
- The capacity to understand power dynamics and the ensuing injustices, with the aim of motivating students to think proactively and critically.

This approach to teaching is demanding for teachers and requires prior training. The goals of this study were to identify the challenges and obstacles encountered in teacher training programmes designed to equip teachers with the skills to teach environmental issues in a way that incorporates their political dimensions (research aim 1). The research will culminate in the development of a teaching programme that can be used by secondary school teachers (research aim 2). This study contributes to existing research on geography education by combining two teaching topics that have been studied separately.

3. Methodology

To address the two research questions, a qualitative study was conducted to explore the prescribed curriculum and its implementation (Jonnaert, 2011; Keeves, 1992). The curriculum is a broader and more contextual concept than an educational programme, encompassing a comprehensive pedagogical plan. It is important to note that this document precedes the aforementioned programmes, delineating objectives and providing direction for teaching and learning activities, assessment guidelines, teaching materials, pedagogical frameworks and teacher training (Jonnaert, 2011). Keeves (1992) distinguishes between the intended curriculum, the implemented curriculum and the achieved curriculum. The transition from one curricular level to another is not linear, but involves recomposition and ruptures, as well as continuities. The central question guiding the present study is whether these phenomena occur in the specific case under investigation. To address the aforementioned research questions, we performed a curriculum analysis, with a focus on the intended and implemented curricula. To this end, the following two consecutive and complementary analyses were carried out:

1. An analysis of the intended curriculum
2. Interviews with 20 teachers

These analyses were conducted from a comparative perspective. The use of a comparative dimension in research facilitates the objectification of concepts that might otherwise be taken for granted. Indeed, school geography is imbued with a profound national narrative (Thémines, 2016) and a global vision. A comparative analysis of curricula from different geographical regions, namely France and Israel, allows for a perspective that transcends the structure of a specific national curriculum and its national narrative. This methodological approach facilitates the identification of teaching practices from an environmental and geopolitical perspective and the exploration of possibilities that transcend national specificities.

3.1. Analysis of the Curriculum

The curriculum was analysed in middle and high schools in France and Israel. The curricula analysed were those currently in use (see Appendix A). Given the focus of the research on the teaching of environmental issues, the analysis was limited to the school years in which such issues are specifically taught. These are the French 5^{me} and 2^{de} (corresponding to the 2nd year of middle school and the 1st year of high school) and the Israeli seventh grade. The curriculum analysis grid is based on the definition by Catarruza and Limonier (2019), 'a method that aims to study power rivalries over territories at any scale'. The analysis adopts a multiscale and diachronic approach, systematically studying the actors involved and their representations. The analytical framework employed in this study is delineated in Table 1 and is founded on three criteria: first, a multiscale approach; second, a diachronic approach and third, a study of the actors and their conceptualisations.

Each curriculum extract on environmental issues was analysed to determine the extent to which the three criteria were met. In instances where all three criteria were met, it was determined that the environmental issues under consideration encompassed the geopolitical dimension of the issue. The analysis was enriched by conducting interviews with geography teachers in Israel and France, which served to extend the curriculum. The analysis was enhanced further by insights drawn from these interviews, which elucidated the practical implementation of the curriculum, thereby providing a more comprehensive understanding of the subject matter.

Table 1. Curriculum and textbook analysis grid

Criteria	Description of criteria
Analysis of environmental dilemmas between stakeholders	The geopolitical approach is mentioned explicitly, implicitly or not at all. It could involve a wide range of spatial dilemmas, such as resource ownership, environmental issues and responsibility for air quality.

Agents and their conceptions

The various agents, including, inter alia, individuals, organisations and governments, are considered in all their diversity. Their conceptions, points of view on the situation, strategies and objectives are also considered.

Multiscale and diachronic analysis

The proposed analysis is multiscale, considering the various scales in time and space relevant to a geographical situation.

3.2. Interviews with teachers

Twenty teachers from secondary schools and upper secondary schools were interviewed (Figure 1). It is important to acknowledge that the sample under consideration is not representative of the broader population of geography teachers in France and Israel. This study is classified as exploratory qualitative research (Creswell, 2018). The educators were meticulously selected to encompass a diverse array of professional profiles, contingent on several criteria, including experience, initial education, gender and subjects taught. We attempted to include a wide range of profiles. The sample included novice and more experienced teachers, some of whom had specialised expertise as trainers or had researched the teaching of geopolitics as part of a master's degree. It is noteworthy that most of the French teachers were historians. They taught history, geography and civic education equally, although more than 80% of geography teachers' initial training was predominantly in history. All the Israeli participants were certified to teach geography and had completed the necessary training. This difference is indicative of the teaching population in Israel and France.

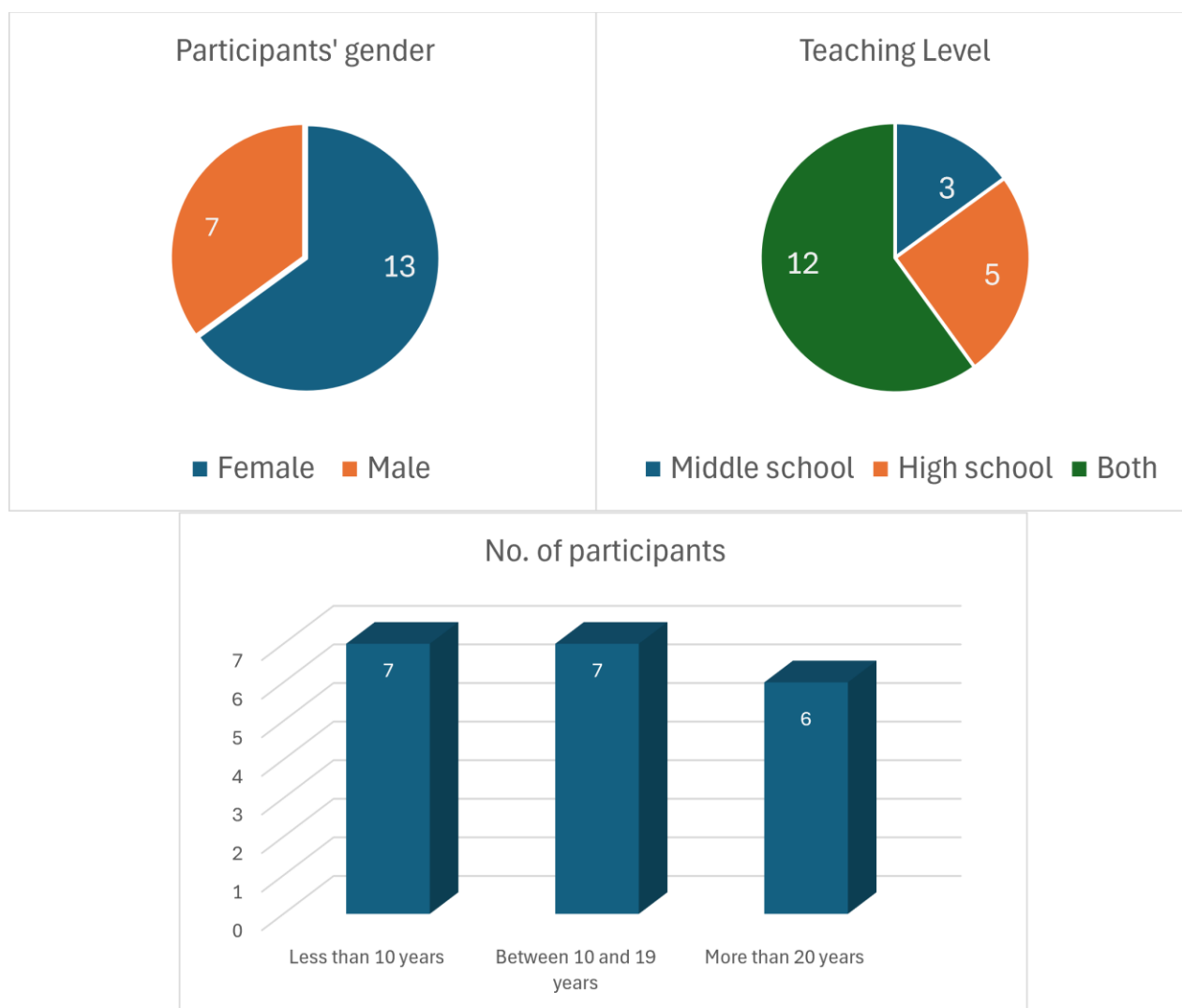


Figure 1. Teacher sample

The objective of the interviews was to identify teaching practices related to environmental geopolitics. Each interview lasted 30 minutes and began with structured questions on the political implications of environmental issues. The initial inquiries addressed the recognition of the political and geopolitical dimensions of environmental issues and the prioritisation of geopolitical perspectives in environmental education. The second part of the interview was semi-structured and focused on teachers' teaching practices and their interpretation of the curriculum. The analysis then

examined several environmental topics included in the curriculum to determine whether they were particularly amenable to a geopolitical approach. A thematic content analysis was subsequently carried out in accordance with established scientific practices (Creswell & Creswell, 2018). The interviews were then systematically arranged according to the following themes:

- The relationship between politics and the environment
- The teacher's role
- Teaching methods and critical approaches
- Students' knowledge and skills
- Teaching of environmental issues
- Political and geopolitical dimensions
- Initial teacher training

See Appendix B for the interview grid. The methodology employed in this study enabled a comparative analysis of the curricula and teaching practices of both countries. This analysis resulted in the formulation of a new curriculum and teacher training programme based on the findings. The comparative dimension is heuristic in that it facilitates contextualisation of the findings by highlighting the elements shared by both countries and each nation's unique characteristics with respect to curriculum, teacher qualifications and so forth. The use of a comparative framework serves to circumvent the potential pitfalls of over-generalisation in the interpretation of curriculum implementation.

4. The Intended Curricula

This section provides an overview of the curricula and teaching materials in each country and discusses the teaching of the subject at middle and high school level. A comparison of the Israeli and French geography curricula reveals that both address environmental issues, yet they differ in terms of structure and emphasis. In Israel, environmental issues are integrated into the geography curriculum, particularly in the seventh grade. The curriculum emphasises that similar environmental problems are found in different parts of the world and are exacerbated by globalisation. In addition, the Israeli curriculum underscores the transboundary nature of many environmental issues, stressing their interconnection across different regions and the need for a global approach to their management. This perspective highlights the global nature of environmental challenges. Specific issues addressed include infrastructure development in open areas, pollution of water sources, depletion of resources, deforestation, soil erosion and various types of pollution. The curriculum draws attention to international efforts to address these problems, including planning, legislation and international treaties such as the Kyoto and Barcelona Conventions, as well as the activities of environmental organisations.

In contrast, the French education system integrates physical geography into the science curriculum, rather than treating it as a discrete subject. Geography is a compulsory component of the curriculum from the first to the final year of secondary education, with a weekly teaching allocation of one hour. In the second and fifth years, environmental issues are prioritised, and in the final year, history, geography, geopolitics and political science are studied. French students who opt to study geography at secondary school can study a chapter entitled 'The Earth and the Environment'. The subject matter encompasses environmental change, including the utilisation of natural resources and the differentiation between non-renewable and renewable natural resources. The targeted learning requires a high level of thinking and students are asked to draw conclusions. It is noteworthy that there is no discernible correlation, in the French education system, between environmental events and the consequences of the political factors that cause them. An optional course, which bears the title, 'History, Geography, Geopolitics and Political Science', incorporates a dedicated theme on environmental geopolitics. The theme is divided into the following sections: an introduction, a first section on environmentalism, a second section on a diachronic approach to climate change and a discussion of tensions and contrasts on environmental issues in the United States. According to the French Ministry of Education, the aim of studying this topic is twofold: to analyse the evolving relationship between societies and their environments, with particular focus on undesirable environmental changes and the geopolitical issues involved (Ministère de l'Éducation Nationale, 2020).

The geography curriculum encompasses topics such as energy and water conservation, food security, global change and the balance between environmental exploitation and protection. While the curriculum documents suggest a geopolitical approach to environmental issues, this perspective is not consistently reflected and developed, often focusing more on state-level dynamics and sustainable management debates. For instance, the curriculum on 'Energy and water: resources to conserve and use more efficiently' does not adequately address geopolitical considerations. The French Ministry of Education further recommends that consideration be given to the social aspects of the problem, including conflicts between stakeholders, as well as the economic and environmental issues (pollution, evaporation, renewed erosion and salinisation) that are associated with the management of these resources (Ministère de l'Éducation Nationale, 2016). Conflict is recognised as one of the dimensions of the energy problem, but the political dimension goes beyond the geopolitical. This example elucidates the issues at the heart of the debate in the context of environmental issues. Although the document addresses the geopolitical dimension, the question of how an environmental issue can be examined from a geopolitical perspective remains unresolved. It is noteworthy, however, that the senior year geopolitics course represents an exception to this observation.

In summary, the curricula of both countries recognise the importance of environmental education, but the Israeli approach is more integrated within the geography curriculum, with a clear emphasis on the global and transboundary nature of environmental issues. The French approach is more fragmented, with environmental issues scattered across different subjects and presenting a less consistent geopolitical perspective. See Table 2 for the prevalence of each environmental topic in the Israeli and French curricula.

It is evident that, in their respective curricula, both Israel and France place significant emphasis on water pollution, rapid resource depletion, deforestation, planning, legislation, international treaties, the activities of green organisations, environmental education programmes and economic activity in sustainability. This comparison underscores these two nations' shared commitment to environmental education, highlighting different areas of focus that reflect their unique environmental challenges and policy priorities.

5. Curriculum Analysis, Teachers' Perspectives and Experiences

This section explores the influence of geopolitics on teachers' perspectives on teaching environmental issues. It presents the thoughts and feelings expressed by the Israeli and French teacher participants that emerged from the interviews. Most of them identified a connection between environmental and political decisions. A consensus emerged from the data regarding the relationship between the environment and politics. A similar conclusion was reached about the influence of politics on environmental issues. Most of the participating teachers expressed the view that

Table 2. Topics related to environmental geopolitics in secondary education in France and Israel.

Environmental topic	Israel	France
Environmental topic	x	
Construction/development in open areas	x	x
Pollution of water sources	x	x
Rapid depletion of resources	x	x
Deforestation	x	
Soil erosion	x	
Cellular radiation, noise and traffic congestion	x	x
Planning, legislation and international treaties	x	
Global and regional aid programme	x	x
Green organisation activity	x	x
Environmental education programmes	x	
Conservation and restoration of heritage sites	x	x
Economic activity in sustainability		x
Energy and water conservation		x
Food security		x
Global change and regional effects		x
Preventing industrial and technological risks		x
Societies and environments: Fragile balances		x
Environment: Exploitation vs protection	x	

the teaching of energy-related topics inherently incorporates environmental considerations. Furthermore, a consensus was reached regarding the link between climate change and politics and that these issues should be included in the curriculum. Despite the consensus on the connection between social studies and the environment, Israeli teachers demonstrated greater decisiveness and comfort with geopolitics than their French counterparts.

It should be noted, however, that the participating teachers expressed some differences of opinion on specific issues. These included the question of whether it was the teacher's responsibility to ensure that students were aware of the impact of politics on the environment in France and in Israel. When asked whether teaching about the environment in class has political aspects and whether teaching about energy has political elements, the participants gave a variety of answers. These responses are significant as, although teachers concurred that political decisions influence environmental decisions, they diverged in their approaches to integrating political influence within the domain of environmental decision-making as part of their teaching programmes. A significant disparity was observed regarding participants' opinions on students' capability to comprehend the political ramifications of environmental concerns. The responses indicated a substantial range of views, from those asserting that students are unable to discern the connections between environmental and political decisions to those suggesting that they possess the capacity to recognise such links and do so.

Environmental issues are taught at either secondary or tertiary level. Teachers reported a wide range of subtopics, most of which are incorporated in the Ministry of Education's curricula. They include domains such as land use, climate change, global warming, energy, pollution, water and recycling. The participating teachers demonstrated extensive breadth and scope of subject matter and expressed a sense of pride in their ability to teach a wide range of subjects. Despite the limited time allocated for teaching, these educators meticulously selected their topics, guided by a profound sense of mission and a steadfast commitment to the education of their students. They were motivated by a sense of environmental responsibility, which was evident in their teaching practices.

A pronounced divergence of opinion about fossil fuels is noteworthy. As opposed to the more nuanced position in France, it is seen as an entirely political issue in Israel, and energy is frequently intertwined with Middle Eastern studies. Of outstanding importance is the fact that, as a prerequisite for enrolment, regional studies are a mandatory component of the curriculum in upper secondary school. The curriculum is structured with emphasis on oil and the Persian/Arabian Gulf region. The curriculum focuses particularly on oil transport and the cartography of oil pipelines, acknowledging the finite nature of oil and the Gulf countries' accelerated growth. Recognition of the significant political ramifications of all these aspects is imperative. However, the study material does not address the environmental aspects, even though some teachers have been known to incorporate environmental considerations when teaching about oil production, particularly in the context of alternative energy sources. The educational process is consistently enhanced using visual aids, including maps, photographs and videos (Figure 2).

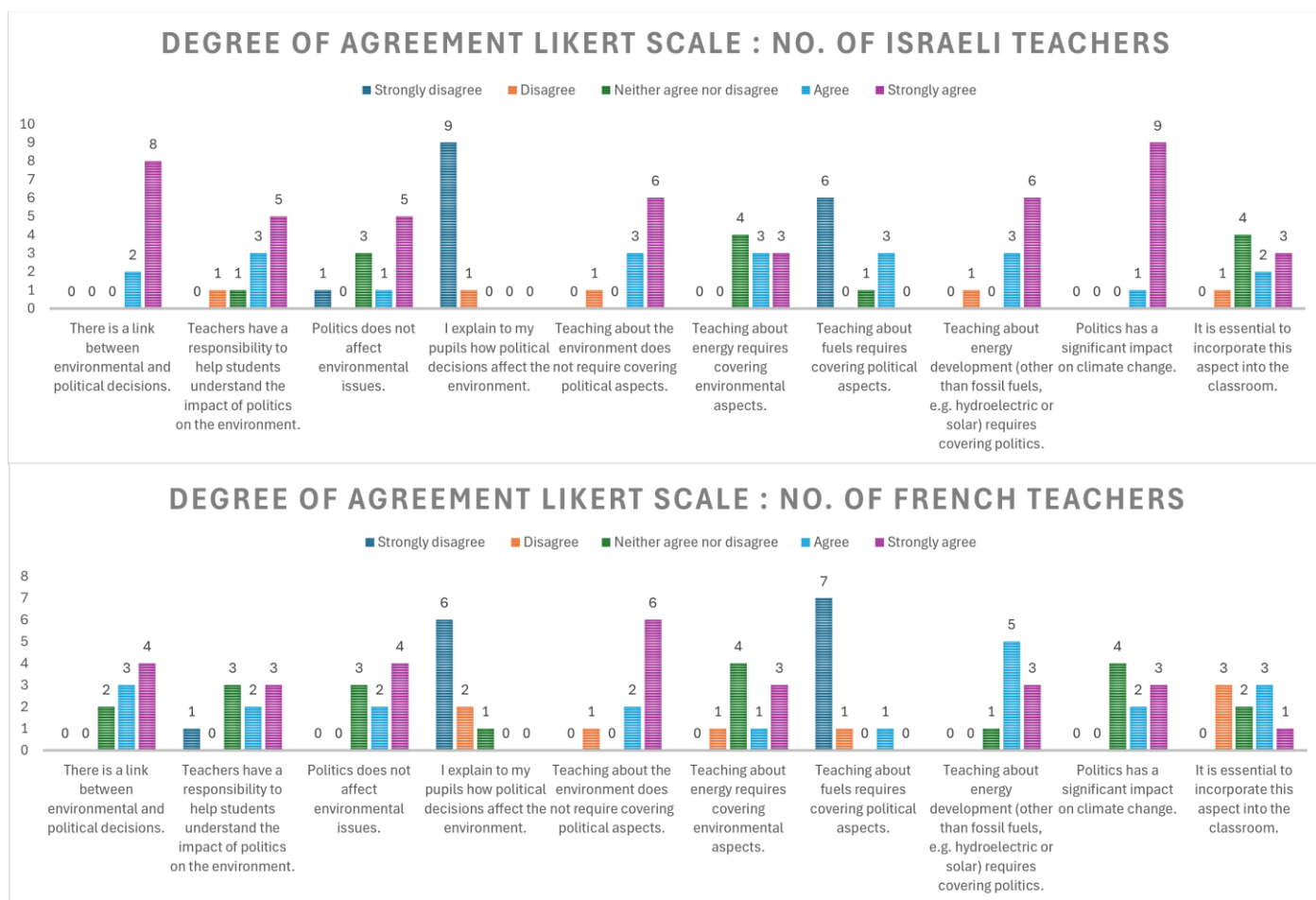


Figure 2. An overview of teachers' perspectives.

A significant degree of consensus was observed among the participants regarding their teaching objectives. The initial aim was to raise awareness, to facilitate understanding of the complexities of environmental issues and to instill a sense of responsibility in students. The onus falls on educators to orchestrate their students' progression. As articulated by interviewee 2IL, the overarching responsibility of educators is to instill a sense of environmental responsibility in students, fostering an understanding of the intricacies of environmental issues and cultivating a sense of responsibility towards the planet and future generations: *'Being aware of our responsibility to the planet', 'What can we do?', 'Gaining an understanding of the subject matter's intricacies and the student's role and responsibility towards the environment and future generations—adopting a long-term perspective', 'Promoting awareness and vigilance and the capacity for critical thinking'* (Interviewee 2IL). In addition to the shared objectives, this participant identified several overarching goals, including the promotion of public transport, the encouragement of cycling and the cultivation of informed media consumption habits.

A significant proportion of respondents from Israel were noticeably enthusiastic at having the opportunity to discuss their experiences of teaching environmental issues. When asked, several respondents gave examples of successful lessons that had been taught outside the classroom. Such lessons are not commonplace, as they require special advance preparation and often involve financial costs. Pupils were instructed to observe the environment outside the classroom and to identify the open space. Most teachers cited student activity as the most effective pedagogical approach. As one interviewee (3IL) explained, students are tasked with identifying arguments and subsequently presenting them to their classmates. Pupils are in charge of preparing either a presentation or a game to persuade their classmates why this area should be preserved or purchased. Two teachers indicated that they could not recall a specific lesson illustrating this phenomenon.

The political aspects were mentioned in the lessons on climate change and were found to vary amongst the participants. This difference may be attributed to the absence of these issues from the formal curriculum. For instance, government policies, local authority policies, political forces, existing laws, the law-making process, international agreements (such as the Kyoto Protocol) and international organisations (such as the UN or NGOs such as Greenpeace) may not be mentioned in formal curricula. The political aspects that were addressed by teachers were predominantly at the global level, with only a limited focus on the local level. A small number of teachers discussed international conflicts between countries and continents. *'The restrictions imposed by governments on conservation initiatives and alternative energy projects, and the promotion of these projects over their obstruction, are also significant factors. Moreover, the developed world presents a paradoxical image of environmental responsibility and sustainability, whilst continuing to pollute by externalising costs to others. This phenomenon is exemplified by the notion of "not in my back-yard"'* (Interviewee 3IL). The prevailing perception of climate change as an international problem, for which all nations are collectively responsible, is a salient factor in this regard. This perception stands in stark contrast to the viewpoint that climate change is a localised problem.

The Israeli curriculum and associated study materials place considerable emphasis on the interconnectedness of economic and political factors, both historical and contemporary. The nexus between politics and the environment is elucidated within the paradigm of globalisation processes. The following subjects are addressed: globalisation and global warming, globalisation and air pollution, desertification and globalisation

and the environment: difficulties and challenges. *'In terms of skills that are more relevant to argumentation and critical thinking, such as the ability to analyse a situation with the necessary objectivity, it is asserted that this adequately addresses the issue. This is a salient consideration in the context of critical thinking and the sustainability of such a development'* (Interviewee 5FR). Conversely, other French teachers, later in the interview, highlighted the challenge of navigating this political dimension while maintaining the impartiality expected of civil servants, as the intention is to demonstrate that environmental concerns give rise to conflicting interests. These teachers perceived the necessity of maintaining neutrality on environmental issues, whereas the Israeli teachers felt that this was the role of the geography teacher, with conflictual dimensions being an integral part of the subject. Interviewee 1FR: *'Once a point has been explicitly made, it is inevitable that a certain degree of embarrassment will follow. This prompts the question of whether it is possible to avoid adopting a neutral stance that is identifiable as such. An ongoing evaluation is underway to ascertain whether there has been any deviation from the expected neutrality of civil servants, with a particular focus on history and geography teachers. This state of affairs gives rise to a certain degree of unease. Nevertheless, it remains a subject of scrutiny and a significant obstacle'*.

It is paradoxical that while teachers attached great importance to teaching the political dimension of environmental issues, they required assistance to identify the mechanisms that would enable them to explore this aspect. The first question in the interview sought to identify the timing and methods used by teachers to address environmental issues. It is noteworthy that none of the French secondary school teachers referenced an environmental and geopolitical dimension. Some suggested that it was not explicitly included in the curriculum or that more time was needed to address these issues. Conversely, teachers identified cross-curricular projects and civic education, which is taught for one hour per week in France, as courses that facilitate a more conducive approach to the political treatment of environmental issues, which does not exist as a separate topic in Israel. *'It is obvious that the most effective approach to debates and arguments is through the lens of citizenship education, especially in the context of cross-curricular projects. Nevertheless, it is reasonable to conclude that in the context of history and geography classes, this will not be the focus of my sequence, due to the limitations imposed by the curriculum'* (Interviewee 5FR).

As illustrated by Interviewee 7FR in the following extract, the political dimension is approached from a legal or institutional perspective rather than a geopolitical one: *'I had previously researched the concepts of freedom and rights. I have worked on environmental freedoms, demonstrating that we are dealing with a distinct legal category and cannot [...]. To illustrate, legislation pertains to the phenomenon of bee disappearance. It would be unwise to apply the law before it has been established that the bee populations are indeed in decline. The political and legal aspects are intertwined. In terms of the COPs, we have been observing them since 1990, in response to the emergence of new global challenges. However, the frequency of their occurrence has increased markedly in recent times'*. A divergent scenario is observed in history, geography, geopolitics, politics (a significant subject in French secondary education) and science. The teachers interviewed who taught this subject explicitly assumed that they were teaching environmental geopolitics, particularly in the context of a chapter on the environment in the final year of secondary school in France, and geography teachers in Israeli high schools. Three out of the five secondary school teachers interviewed identified the geopolitical dimension as being linked to the historical aspects of the chapter. The objective is to elucidate the way environmental policies have been implemented in the United States since the eighteenth century. The political dimension is made explicit by analysing the contrasting positions of the Republican and Democratic parties. It is important to note, however, that this geopolitical analysis is not strictly speaking an example of environmental geopolitics.

The role of actors, their varied representations and the multi-scalar approach were more pronounced in the two teachers to whom the last two quotes are attributed. Both had expertise in geopolitics, having written a master's thesis on the subject. The courses they taught appeared to align with an environmental geopolitical framework, which distinguished them from their peers. Their expertise in the geopolitics of education and pedagogy was a salient differentiating factor. In comparison to the other teachers interviewed, who had received minimal or no training in geopolitics, these two teachers were notable exceptions.

6. Discussion

The present study revealed commonalities between teachers from both countries, as well as differences in teaching content and methods. A recurrent challenge faced by educators across diverse geographical contexts pertains to the discordance between the structured curriculum and the geopolitical landscape. Research on the didactics of geography in France has demonstrated that teachers tend to impart knowledge as fixed outcomes rather than facilitating students' active construction of knowledge (Audigier, 1993; Mével & Tutiaux-Guillon, 2013; Tutiaux-Guillon, 2004). The process of knowledge construction is effectively erased and what is taught is presented as an unquestionable truth (Audigier, 1996). In the classroom, the world is presented as a consensual and apolitical entity. Despite the evolving practices of teachers, the absence of politics, in the etymological sense of the term, remains prevalent and persists in the teaching of geography in French secondary schools (Tutiaux-Guillon, 2004). This paradoxical situation in France, where geography is taught to prepare students for citizenship, highlights the need for change and improvement in the current system.

Israel is unusual in that geography teachers incorporate political content in their lessons. However, geopolitics is not a subject incorporated in their training, and teachers are therefore reluctant to include it in their lessons. To enhance the pedagogy of environmental geopolitics, it is essential to integrate geopolitics as a fundamental component of both pre-service and in-service teacher training in geography. This necessitates the training of teachers in geopolitical methodology and the teaching techniques required to convey this knowledge effectively. The overarching objective is to disseminate geopolitical expertise to teachers and to equip them with the necessary resources and methods to teach environmental geopolitics. Furthermore, it is imperative that educators give due consideration to their concerns when developing a curriculum on environmental geopolitics. Robust reference points in curriculum design are also required. Geopolitical education is inextricably linked to the broader concept of political education.

The authors have thus proposed a theoretical model to enable teachers to teach environmental geopolitics. This model is an a priori theoretical construction that has not been empirically tested and is based on Barthes' theory (2022). The curricular markers can be adapted and used in the teaching of environmental geopolitics. In this instance, the approach has been adopted with three levels for each criterion, as presented in Table 3.

Table 3 illustrates the relationship between a teacher's geopolitical thinking, teaching practices and classroom outcomes. The incorporation of such content during the training period is expected to equip educators to address these contentious issues in their classrooms. The aim of the table is to serve as a benchmark for the teaching of environmental geopolitics to educators.

Table 3. Curricular markers of environmental geopolitics education in teacher training.

Curriculum markers	Level 1	Level 2	Level 3
Ability to decode the epistemological construction of knowledge	Teachers do not find any connection between geopolitical decisions and environmental issues.	Teachers understand the connection between geopolitical decisions and environmental issues but limit their teaching to institutional/formal aspects.	Teachers recognise the importance of understanding the influence of geopolitics on environmental issues and discuss this with their students.
Ability to recognise the multi-referential nature and reality of social relationships	Teachers are unaware of the different agents involved in geopolitics and environmental issues, as well as their strategies and values.	Teachers recognise the different agents involved in geopolitics and environmental issues, but they do not teach their strategies and values.	Teachers discuss with students the different actors and agents involved in geopolitical and environmental issues, as well as their strategies and values.
Ability to develop a problem-based learning lesson from a societal point of view	The lesson describes the situation in accordance with the curriculum. No issue is presented, and no geopolitical impact is explored.	The lesson is based on geopolitical influence on environmental issues. The teachers present this to the students.	The lesson is based on geopolitical influence on environmental issues. The students are asked to find arguments.
Ability to decode relationships of power and injustice	The relationship between power and injustice is not part of the lesson.	Teachers present the relationship between power and injustice as an outcome of political involvement. No engagement is required of the students.	Students understand the relationship between power and injustice. The lesson aims to encourage the students to develop their ideas.

7. Conclusions

All teachers who participated in this study demonstrated an awareness of the relationship between environmental issues and politics. In Israel and France, the political dimension of environmental geopolitics and the need to teach these issues was obvious to all the teachers interviewed. The development of students' critical thinking and empowerment in relation to environmental issues appeared to be contingent on an understanding of this connection. This constitutes the primary finding of this article.

Teachers can use the prescribed curriculum to teach environmental and geopolitical issues that are present in both the Israeli and French curricula. It is important to note, however, that the specific topics addressed and the perspectives adopted vary between the two countries. In the French curriculum, these issues are more closely related to history, and in the Israeli context, they are more closely related to economics. In Israel, most teachers address political aspects on a global scale. In contrast, French teachers tend to focus on regional or local issues, although they acknowledge global considerations such as international conferences and agreements. The underlying reasons for these discrepancies remain unaddressed in this analysis. It can be assumed that these variations are linked to the geopolitical context of each nation, as well as the distinctive curricular logic inherent in each country's educational framework. In Israel, for instance, the concept of the border is a recurring theme, which is readily comprehensible given the country's geopolitical significance. In France, the geographical proximity of history to geopolitical issues is indicative of an approach that is informed by a historical perspective.

The interviews indicate that the challenges arise from the curriculum and the way politics is addressed. The integration of environmental concerns and geopolitical dynamics in the curriculum is a challenging and often uncomfortable endeavour for educators. The integration of these two subjects frequently results in obstacles and conflicts within the classroom environment. Teachers and students frequently report feelings of discomfort when discussing these issues in class, particularly if they lack the confidence to engage with them effectively. As evident from the research findings, many Israeli educators reported similar challenges and incorporated environmental geopolitics into their pedagogical practices. In contrast, French teachers, in accordance with established guidelines, rarely address the political or geopolitical aspects of environmental issues. However, this tendency is not consistent across all educational settings, particularly in the context of specialised geopolitics courses, where the political dimensions are frequently discussed, often in the context of international conferences.

Our findings reveal a limited integration of environmental geopolitics into the curriculum. This result is of particular significance in the context of this study. The underlying reasons for this discrepancy are not uniform across the two countries, but both nations share similar structural factors as the primary causes: namely, a paucity of training and conventional teaching practices. The present study adopted an exploratory approach, facilitating the formulation of preliminary observations on the teaching of environmental issues within the geography curriculum. However, the study findings are constrained by the limited sample size, which hinders the ability to ensure adequate representation of the studied population. To investigate this further, we recommend expanding the international dimension to determine whether the barriers to teaching environmental geopolitics are consistent across different educational contexts. Furthermore, the interviews yielded minimal concrete evidence to address our second research question: What improvements could be made to the geography curriculum regarding the link between environmental issues and geopolitical influence? Teacher training has been identified as a pivotal factor in enhancing the environmental geography curriculum. It is therefore recommended that future research consider the application of other education systems on a global scale. The two countries represented in this study include education systems in democratic countries. The question therefore arises as to whether a similar link can be identified in non-democratic countries.

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Appendix A: Curriculum references analysed

Level	France	Israel
Middle school	<p>Official Newsletter n°30 dated July 26, 2018</p> <p>Special Official Newsletter n°11 dated November 26, 2015.</p> <p>The Ministry's Eduscol website presents recommendations for teachers.</p>	<p>State of Israel, Ministry of Education, Official Curriculum for Geography and Environmental Issues [Consulted September 2023]</p> <p>https://school.kotarcet.ac.il/Kotarcet/Viewer.aspx?nBookID=98763188#3.3726.6.default</p>
High School	<p>Special Official Newsletter dated January 22, 2019.</p> <p>The Ministry's Eduscol website presents recommendations for teachers.</p>	<p>State of Israel, Ministry of Education, Official Curriculum for Geography and Environmental Issues [Consulted September 2023]</p> <p>https://pop.education.gov.il/tchumey_daat/geography_adam_sviva/chativa-elyona/pedagogya-geohata/syllabus/</p>

Appendix B: Teacher's interview

A. The following statements are presented for consideration and response: (1= Strongly disagree, 5= Strongly agree).

	1 Strongly disagree	2	3	4	5 Strongly agree
There is a link between environmental and political decisions.					
Teachers have a responsibility to help students understand the impact of politics on the environment.					
Politics does not affect environmental issues.					
I explain to my pupils how political decisions affect the environment.					
Teaching about the environment does not require covering political aspects.					
Teaching about energy requires covering environmental aspects.					
Teaching about fuels requires covering political aspects.					
Teaching about energy development (other than fossil fuels, e.g., hydroelectric or solar) requires covering politics.					
Politics has a significant impact on climate change.					
It is essential to incorporate this aspect into the classroom.					

B. Please answer these questions:

1. Do you teach about the environment? What kind of issues do you teach? What grade do you teach them to?
2. Do you teach about energy? How do you do that?

3. What are your teaching goals when teaching about the environment?
4. Can you give an example of a successful lesson you taught on environmental issues?
5. What political aspects did you mention in lessons about climate change?
6. Do you find covering these things in class essential or unnecessary? Please explain.
7. Do you feel comfortable teaching about the geopolitical side of environmental issues?
8. Was the link between environmental studies and political issues mentioned during your teacher training?

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