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Promotion of Environmental Education in the Spanish Compulsory Education Curriculum. A Normative Analysis and Review

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Abstract: The environmental education and the promotion of the sustainability are two of the main axes in the international guidelines around the world. Education institutions must play an active role to achieve environment and sustainability awareness, and government educational policies should provide education institutions the necessary tools. This study tries to analyze the way in which these topics have been integrated in the Spanish compulsory curriculum through the normative review. Specifically, a content analysis has been used to quantify environmental and sustainability references, both in the subjects they integrate and the contents and standards which they relate with. The results show that: (1) there is not a transversal consideration of these terms; (2) the integration is greater in the Secondary Education; (3) environmental and sustainability treatment is mostly theoretical and focused on instrumental subjects; (4) when the approach is practical, it is often linked to reflections processes. Thus, we conclude on the need for governmental institutions to increase the presence of these terms in the educational curriculum and to integrate them in a transversal way and, through specific content, skills that contribute to build a collective social awareness of the importance of these phenomena in our society, including them as content as well as in the initial and continuous training.

Keywords: education institutions; environmental education; government educational policies; promotion of the sustainability



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1. Introduction

The United Nations agreement “Transforming Our World: The 2030 Agenda for Sustainable Development” [1], which was adopted by all United Nations Members in 2015, is the current framework to deal with the present and future most urgent challenges for our planet and all their citizens.

The 2030 Agenda is organized in the 17 Sustainable Development Goals (SDG), which are the successors of the 8 Millennium Development Goals (MDGs) established in 2000, also by the United Nations. One of the most relevant changes is the redefinition of development as a global problem and not as a North–South agenda based on support policies, requiring a global development of universal scope, focusing in the reduction in extreme poverty—providing continuity to the MDGs—but also fighting against inequality and promoting environmental development [2].

Along the same lines of the Agenda 2030 SDGs, the European Union Council called on the European Commission to present a proposal for an 8th Environment Action Program (EAP) for the period 2021 to 2030 providing common priority objectives and keeping the 2050 vision from the 7th EAP, which took place in 2013 stating a framework for European environmental action to 2020 as a guideline for 2050 [3]. Among others, we can read in the Council conclusions “the need to improve implementation, enforcement of Union legislation,

information, communication with and awareness raising of the public” [4], which is in line with some of the requirements of the 7th EAP as “enhancing Union public information provision, awareness and education on environment policy.” As a requirement to achieve Priority objective 1: To protect, conserve and enhance the Union’s natural capital, or the requirement of Priority objective 8: To enhance the sustainability of the Union’s cities “in the context of ongoing Union initiatives and networks, developing and promoting a common understanding of how to contribute to improved urban environments by focusing on the integration of urban planning with objectives related to resource efficiency, an innovative safe and sustainable low-carbon economy, sustainable urban land-use, sustainable urban mobility, urban biodiversity management and conservation, ecosystem resilience, water management, human health, public participation in decision-making and environmental education and awareness.” [4]

Many studies agree that Higher Education Institutions (HEI) should play an important role in the SDGs development and achievement [5–8], either because they have been integrating sustainability into their curricula, or because of serving as models for sustainability to their host communities [5]. Yuan Ma et al. [6] concluded in their study that environmental education in college students had a positive influence in their environmental awareness, what reinforce the idea of the important role of HEI in environmentally sustainable development.

Although our agreement with the important role of HEI in development of SDGs and environmental related SDGs, we consider also environmental education in children and youth matters in order to fulfill both SDGs and EAPs requirements regarding environmental awareness. According to the statistics from the Spanish Ministry of Education [9] 41.6% of 30–34 year old population in the EU (European Union) and 44.7% in Spain had a high education level in 2019, the rest of the population left their education after completing compulsory education, which in Spain ends at the age of 16, before starting pre-university studies. That means that if we focus environmental education in HEI, we will be leaving more than half of the population out of the EAP’s requirements above mentioned and also some of the SDGs targets (4.7, 12.7, 12.8, and 13.3) also related to public environmental education and awareness.

As said, the analysis of sustainability and environmental education in the scientific literature is predominantly linked to higher education. However, similar researches have been carried out in the Spanish curriculum. For example, Martínez-Borreguero et al. [10] analyze the inclusion of the term “water” from the perspective of education for sustainable development and concluding that the concept appears moderately in the curriculum focusing on some aspects of this phenomenon. Additionally, in the context of secondary education, Patta and Murga [11] also study the integration of competences in sustainability, concluding that the contents and competences in this stage are mainly related to the environmental crisis and highlighting the need to encourage more responsible attitudes in the students.

Also, in other countries, analyzed educational education, for example, in Iceland Jóhannesson et al. [12], found some signs and indicators that allowed teachers and schools to address sustainable development issues, even if the term sustainability did not appear very often in the curriculum. Looking at New Zealand, Eames et al. [13] suggest applying a greater emphasis on environmental and sustainability education in the next curriculum policy change.

Pociovalisteanu et al. [14], stated that achieving the targets set in the EU environmental policies requires complex changes in lifestyle of many people, in our use of technologies and institutional management. They also concluded that both employment and educational policies must focus on creating the right skills for the new demands of green economy.

Taking all this into account, the aim of this study is to analyze the environmental education and sustainability inclusion into the non-university Education Institutions, through a qualitative and quantitative analysis of the Spanish education policies that affect the primary, secondary, and pre-university education stages. Specifically, the following strategic objectives are being pursued:

- Specific Objective 1 (SO1): Quantify the references related to the terms “environment” and “sustainability” in primary and secondary Spanish education regulatory policy.
- Specific Objective 2 (SO2): Identify the subjects where these topics are dealt, as well as their classification (core, specialized, or optional subjects).
- Specific Objective 3 (SO3): Classify the kind of knowledge integration that is made of these topics (theoretical or applied approach).

2. Materials and Methods

The research design responds to a mixed approach. On the one hand, and after identifying the two topics on which the analysis would focus (in this case, sustainability and environment), a descriptive, and qualitative analysis is carried out through the regulatory framework. Specifically, the last three general regulations [15–17] of the education system will be analyzed, as well as the regulations [18,19] governing the curriculum of the stages that make up compulsory schooling (Primary Education and Compulsory Secondary Education) that derive from the last of these. The regulations analysed are listed in Table 1.

Table 1. Analyzed regulations.

General Regulations of the Education System	Regulations Governing the Curriculum
Organic Law 1/1990, of 3 October, on the General Organization of the Education System [15]	
Organic Law 2/2006, of 3 May, on Education [16]	
Organic Law of 8 December 2013 for the Improvement of Educational Quality [17]	RD 126/2014, of 28 February, establishing the basic curriculum for Primary Education [18]
	RD 1105/2014, of 26 December, establishing the basic curriculum for Compulsory Secondary Education and the Pre-university Education [19]

Own elaboration.

Thus, the descriptive focuses on the analysis of the frequency of reference to these issues in the different regulations governing the education system and the stages of Primary and Compulsory Secondary Education. This quantification is classified into the different subjects that comprise the corresponding curricula of both stages.

On the other hand, the qualitative analysis focuses on the content of these references, also classifying them according to the processing carried out. In this case, it is analyzed whether a theoretical or practical approach to sustainability and the environment can be deduced from the formulation of the contents, evaluation criteria, and learning standards.

In this way, we consider that the references linked to processes for developing procedures and building attitudes have a practical orientation, while if they are related to understanding the phenomenon of study have a theoretical character.

The analysis of the Spanish educational legislation will allow us to establish some differences in relation to the knowledge integration of sustainability and the environment in the regulations that have governed the system in recent years in the stages that make up compulsory schooling.

Firstly, an approximation will be offered of how these issues have been integrated into the last three general laws (organic laws) of the education system, both from a quantitative (number of references) and qualitative (content analysis) point of view. Later, these same analyses will be addressed, but focusing on the two regulations (RD) governing the teaching of the two stages in question (Primary Education and Compulsory Secondary Education), thus attempting to respond to a more global analysis.

3. Results

3.1. Sustainability and Environment on the Education System Regulations

Interest in sustainability and the environment has increased in recent years in line with the increase in references in the state regulations that have governed the Spanish education system (see Table 2):

Table 2. Number of references to sustainability and environment in general education legislation in recent years.

General Regulations of the Education System	“Sustainability” References	“Environment” References
Organic Law 1/1990, of 3 October, on the General Organization of the Education System [10]	0	3
Organic Law 2/2006, of 3 May, on Education [11]	1	5
Organic Law of 8 December 2013 for the Improvement of Educational Quality [12]	4	5

Own elaboration.

The Organic Law 1/1990 (Oct 3rd) on the General Organization of the Educational System (LOGSE) [15], did not reference sustainability, but three allusions to environment—making them the first to refer to education for sustainable development in Spanish educational regulations. Later, in the Organic Law 2/2006 (May 3rd), on Education (LOE) [16], there is a direct reference to sustainability, increasing the number of references to environment to five. The number of references to environment and sustainability has increased on the basis of the Organic Law of 8 December 2013 for the Improvement of Educational Quality [17], which makes four explicit references to sustainability and maintains the five references to environment.

If we analyze, on the other hand, the specific content of these regulations, the LOGSE (1990) recognized, for the first time, that one of the principles of the education system was “training in respect for and defense of the environment”. This principle was consolidated by including, in the stages of Primary Education and Compulsory Secondary Education, the skills that students should acquire at the end of each of the stages. Article 13 specified the need to value “the conservation of nature and the environment”, while Article 19 extended this idea by recognizing the need to “critically assess social habits related to health, consumption and the environment”.

Afterwards, the LOE (2006) established that one of the principles that the education system should have is the acquisition of values that encourage respect for living beings and the environment, in particular the value of forest areas and sustainable development (Article 2).

This principle is reflected in the objectives of the different stages. For example, it is recognized that Compulsory Secondary Education must promote the critical evaluation of “social habits related to health, consumption, care of living beings and the environment, contributing to their conservation and improvement” (Article 23). The Pre-university Education, on its part, contemplates that this stage should contribute to “Knowing and valuing critically the contribution of science and technology in changing living conditions, as well as strengthening sensitivity and respect for the environment” (Article 33). Finally, Article 40, devoted to the objectives of professional training education, points out that it should help to “Know and prevent environmental risks”.

Finally, the LOMCE (2013) recognizes in its Preamble the need to implement a reform based on the European Union Strategy for intelligent, sustainable, and integrating growth. Specifically, five objectives were established for the 2020 Horizon in the areas of employment, innovation, social integration, education, and climate and energy, being the relationship between the last two the object of our study. In relation to education, the reduction in school dropouts was proposed, with no explicit goal in relation to climate and energy.

However, we must point out that one of the aims of education (Article 2, e) is recognized as being “training for peace, respect for human rights, community life, social cohesion, cooperation and solidarity among people, as well as the acquisition of values which promote respect for living beings and the environment, in particular the value of forest areas and sustainable development”.

This aim is made explicit in the regulations themselves in the objectives pursued by Compulsory Secondary Education, the Pre-University Education and Professional Training Education, with no reference to Pre-School and Primary Education.

Specifically, it is recognized as an objective (in Article 23, above mentioned) of Secondary Education to “critically assess social habits related to health, consumption, care of living beings and the environment, contributing to their conservation and improvement” (Article 23, k), highlighting the need to promote care of the environment.

3.2. Sustainability and Environment in Compulsory Education: A Stage Analysis

Analyzing in a specific way the regulations that govern the different stages that are the object of our study, the promotion of environmental education and sustainability is quite varied, being more present in Compulsory Secondary Education than in Primary Education.

On one hand, Royal Decree 126/2014 (Feb 28th) [18], which establishes the basic curriculum of Primary Education, states in its preamble that this stage must incorporate curricular elements “related to sustainable development and the environment”.

Apart from this first allusion, we can find a total of six references to sustainability and ten to the environment within the framework of the different subjects (see Table 3):

Table 3. Number of references to sustainability and environment in Primary Education Subjects in the RD 126/2014 [18].

Subject	“Sustainability” References		“Environment” References	
	Frequency	Percentage	Frequency	Percentage
Social Sciences	4	66.7%	2	20.0%
Natural Sciences	2	33.3%	1	10.0%
Foreign Language: English	0	0%	4	40.0%
Social and civic values	0	0%	3	30.0%
Total	6	100%	10	100%

Own elaboration.

As can be seen, references to sustainability are limited to the areas of Natural Sciences and Social Sciences, while those related to the environment are also related to foreign language and social and civic values.

It is worth beginning by stating that the integration of these concepts in Foreign Languages is limited to the learning of high-frequency oral vocabulary, including the environment, climate, and natural surroundings as one of the areas of learning and, therefore, it is an approach that is not linked in itself to the promotion of the subjects that we are dealing with.

However, most of the explicit allusions to the phenomenon that concerns us are concentrated in the Social Sciences subject, and therefore focusing on the human influence on the environment and its environmental consequences. “Sustainable development” is stipulated as a content itself, being one of its evaluation criteria the explanation of the influence of human behavior on the natural environment, identifying the sustainable use of natural resources by proposing a set of measures needed for the sustainable development of humanity, specifying its positive effects. Likewise, a learning standard is envisaged in this same subject relating to the responsible use of natural resources and the proposal and adaptation of measures leading to the enhancement of environmental conditions. It can be derived from this analysis that this subject integrates issues of a theoretical nature, but also applied, providing a global integration of the subject.

On the other hand, we also find related contents in Natural Sciences, recognizing that “science is an indispensable instrument to understand the world around us and its changes, as well as to develop responsible attitudes on aspects related to living beings, resources and the environment”. Specifically, it is in the block of Matter and Energy where the identification of the benefits and risks of the use of energy for sustainable development is recognized as one of the learning standards, making a theoretical approach to the content without an explicit practical application.

Finally, within the subject of Social and Civic Values, is highlighted the need to reflect on the impact of science and technology on the protection and conservation of the environment. Specifically, the selection and contrast of information regarding threats to the environment and life derived from science and technology is recognized as a standard of learning, taking into account issues such as the uncontrolled exploitation of natural resources, habitat destruction, chemical and industrial pollution, acid rain, climate change, desertification, etc. This proposal therefore integrates a theoretical and practical treatment that includes reflection or research.

On the other hand, Preamble of the Royal Decree 1105/2014 (Dec 26th), establishes the basic curriculum of Compulsory Secondary Education and the Pre-university Education [19]. It contemplates, as in the previous stage, that “the curricula of Compulsory Secondary Education and the pre-university education will incorporate curricular elements related to sustainable development and the environment”.

If we look at the inclusion of references in the stages regulated by these regulations, we can see that there is a sum of 221 (45 relating to sustainability and 178 to the environment), with more references in Compulsory Secondary Education. In this stage, there are 24 references to sustainability and 97 to the environment, while in Secondary Education there are 21 and 81, respectively, (see Table 4):

Table 4. Number of references to sustainability and environment by educational stage according to RD 1105/2014 [19].

Stage	“Sustainability” References		“Environment” References	
	Frequency	Percentage	Frequency	Percentage
Compulsory Secondary Education	24	53.3%	97	54.5%
Pre-university Education	21	46.7%	81	45.5%
Total	45	100%	178	100%

Own elaboration.

Focusing the analysis on Compulsory Secondary Education, it is relevant to note that it is recognized as one of the objectives of the stage (article 11) to “critically assess social habits related to health, consumption, care of living beings and the environment, contributing to their conservation and improvement”.

It should be pointed out that there are various types of subjects and, therefore, not all of them take the same subjects during this stage, due to the training itineraries and the possibility of choosing specific subjects:

- Core subjects: all students, during the first cycle of the stage (from 1st to 3rd year), take Physics and Chemistry, Geography and History, and First Foreign Language.
- Core Itinerary Subjects: in the 4th year, students can choose either the Academic Education route (leading to the Pre-university Education Program) or the Applied Education route (leading to Professional Training Education). The following are part of the academic courses: Physics and Chemistry, Biology and Geology, and Economics, while in the applied course they are part of the Pre-university Education: Sciences Applied to Professional Activity and Technology.
- Specific subjects: in each of the cycles, there are a series of subjects that students can choose to take, with the exception of Physical Education (which is taken in all the courses) and Religion or Ethical Values (one of which is also taken annually). The remaining subjects that are part of this group are Technology (first cycle), Scientific Culture (second cycle) and Plastic, Visual, and Audio-visual Education (first and second cycle).

The number of references we find in the different subjects is very diverse, with some of them contemplating allusions to both phenomena (sustainability and environment) and others where only the latter is mentioned. For example, Biology and Geology accounts for the greatest number of allusions (37.5% to sustainability and 23.2% to the environment), followed by Sciences Applied to Professional Activity (20.8 and 17.9%, respectively), Physics

and Chemistry (12.5 and 11.6%) and Scientific Culture (4.2 and 10.5%), as can be seen in Table 5:

Table 5. Number of references to “sustainability” and “environment” in Compulsory Secondary Education Subjects in the RD 1105/2014 [19].

Subject	Type of Subject *	Academic year/s	“Sustainability” References		“Environment” References	
			Frequency	Percentage	Frequency	Percentage
Biology and Geology	CR	1 st y 3 rd	9	37.5%	22	22.7%
	CR-AC	4 th				
Sciences Applied to Professional Activity	CR-AP	4 th	5	20.8%	17	17.5%
Physics and Chemistry	CR	2 nd y 3 rd	3	12.5%	11	11.3%
	CR-AC	4 th				
Scientific Culture	SP	4 th	1	4.2%	10	10.3%
Geography and History	CR	1 st , 2 nd , 3 rd y 4 th	3	12.5%	6	6.2%
Economics	CR-AC	4 th	2	8.3%	5	5.2%
Technology	SP	1 st , 2 nd y 3 rd	1	4.2%	4	4.1%
	CR-AP	4 th				
First Foreign Language	CR	1 st , 2 nd , 3 rd y 4 th	-	-	9	9.3%
Ethical Values	SP	1 st , 2 nd , 3 rd y 4 th	-	-	8	8.2%
Physical Education	SP	1 st , 2 nd , 3 rd y 4 th	-	-	2	2.1%
Introduction to Entrepreneurial and Business Activity	SP	1 st , 2 nd , 3 rd y 4 th	-	-	2	2.1%
Plastic, Visual and Audiovisual Education	SP	1 st , 2 nd , 3 rd y 4 th	-	-	1	1.0%
Total			24	100%	97	100%

Own elaboration. * Abbreviations: Core Subjects (CR), Core Itinerary Subjects—Academic Education (CR-AC), Core Itinerary Subjects—Applied Education (CR-AP). Specific subjects (SP).

The content analysis linked to this stage is presented on the basis of two criteria: the number of references and the presence of both concepts. In this way, the subjects where there are references to sustainability and the environment are first dealt with and ordered by the frequency of these references (following the structure of the table above).

The area of **Biology and Geology** accounts for 37.5% of references to sustainability and 22.7% to the environment. This is because, according to the regulations, this subject must contribute to students’ familiarity with nature and to the development of responsible attitudes towards sustainable development.

During the first, and third year of Compulsory Secondary Education, this subject deals with the importance of the conservation of the environment for all living beings, promoting the understanding and appreciation of preserving the environment because of its impact on health and of being responsible for the consequences of their decisions on the environment. Specifically, in Block 2, dedicated to the earth and the universe, we can see that three of its evaluation criteria and corresponding learning standards are linked to the responsible use and sustainable management of mineral resources, environmental pollution, and the proposal of solutions, and to the sustainable management of water. Likewise, in Block 3 (Ecosystems), we can find as content the actions that promote the conservation of the environment, associated with evaluation criteria and learning standards oriented towards the recognition of actions that promote their conservation. In this case, a theoretical approach can be observed, accompanied by applied actions aimed at reinforcing the aspects dealt with.

Also, in the subject of the 4th year, we find explicit references to the concepts that concern us in two of its blocks: The evolution of life (Block 2) and Ecology and the environment (Block 3). In them, the contents are established as “Human activity and the environment”, “Environmental consequences of human energy consumption”, and “Knowledge of simple techniques to know the degree of pollution and purification of the environment”. In them, we can find evaluation criteria and learning standards dedicated to evaluate the applications of technology in the environment, the recognition of the environmental factors that

condition the development of living beings in a specific environment and the importance of its conservation, the sustainable management of resources or the importance of the use of renewable energies for the sustainable development of the planet. In this way, the integration of the topics has a predominantly theoretical orientation, leaving only a practical standard of learning focused on the defense of actions for the improvement of the environment.

Meanwhile, the specific subject of **Sciences Applied to Professional Activity** (4th year) accounts for 20.8% of references to Sustainability and 17.5% of references to the environment. The objective of this course is to learn about science, its applications to professional activity and the environmental impact of obtaining different necessary products for industry and consideration of the sustainable use and management of resources. Thus, in Block 2, dedicated to the applications of science in the conservation of the environment, the different types of environmental pollutants are studied, their origins and negative effects, as well as the treatment to reduce their effects and eliminate the waste generated. It also includes research activities for solutions to the environmental problem. Concretely, Pollution: concept and types, as well as soil, water, air and nuclear pollution are considered as contents, introducing waste treatment, basic and experimental notions of environmental chemistry and sustainable development. All these contents are materialized in evaluation criteria and learning standards of a conceptual nature (what is pollution, which are the most representative types, what environmental effects do they produce in the soil, air, water, or what is it, and what does sustainable development imply), but also of a procedural nature (apply resource control measures or propose sustainability strategies for the center) and attitudinal (argue advantages and disadvantages of recycling and reusing resources or participate in awareness campaigns for the conservation of the environment), providing a global character to the integration of our study topics.

In the area of **Physics and Chemistry**, for its part, we find 12.5% of references to “sustainability” and 11.3% of references to “environment”. This area also deals with the industrial and social implications related to health and the environment, as well as environmental chemistry, with the aim of students being able to critically assess the social implications of these scientific advances, in order to guide society towards a sustainable future. In 2nd and 3rd year of Compulsory Secondary Education, where the subject is core for all students, it is introduced as an evaluation criterion “to know and respect the safety and waste disposal regulations for the protection of the environment”. Likewise, and linked to the content of “Chemistry in society and the environment”, evaluation criteria and learning standards are considered, assessing the importance of the chemical industry and its influence on the environment (greenhouse effect and other global problems). It also establishes, as a standard, the proposal of measures and attitudes to mitigate environmental problems. Similar evaluation criteria and learning standards are established in Block 5, although they are linked to energy. In this way, the role of different types of energy in life is addressed, comparing their environmental impact and recognizing the importance of saving them for sustainable development.

For its part, in the 4th year, where the subject is the core of the Academic Sciences itinerary, some of these issues are dealt with in greater depth. Specifically, in Block 3, dedicated to changes, the importance of chemical reactions and their environmental impact, an issue that is also included as a content (Social and environmental consequences of chemical combustion reactions) and as an evaluation criterion (Analyzing the influence of combustion reactions at a social, industrial and environmental level) in Block 4 “Energy transformations and spontaneity of chemical reactions”, is established as an evaluation criterion. Finally, in Block 5, the description and assessment of the role of carbon chemistry in our lives and the need to adopt sustainable environmental measures are considered as evaluation criteria and learning standards. Under this perspective, it could be concluded that, although it offers a mostly theoretical view of sustainability and the environment, it also incorporates evaluation criteria and learning results of an applied nature.

For the specific subject of **Scientific Culture** (4.2% of the references to sustainability and 10.3% to the environment), we find an allusion to sustainability and 10 references to the environment, all of them as evaluation criteria and learning standards and practically all of them linked to Block 3 (Technological advances and their environmental impact). In it, we can find issues such as the identification of the main environmental problems, their causes and consequences, the knowledge and analysis of the main international agreements and protocols on the protection of the environment, the search for solutions, the evaluation of the consequences of the over-exploitation of resources and the need to experiment with new ways, as well as the argument on the need for a sustainable management of resources. In this way, our study concepts are approached in a global way, giving a theoretical and practical coverage to the contents.

In **Geography and History**, a general core subject for all students in all four courses, 12.5% of the references are related to sustainability and 6.2% to the environment. In the distribution of the 1st to 3rd year, the references are linked to Blocks 1 (the physical environment), 2 (human space), and 9 (Technological Revolution and Globalization). In the first of these, content on the physical environment is established, including content relating to the natural environment and environmental problems, establishing as an evaluation criterion the knowledge, description and assessment of human action on the environment and as a learning standard the search for digital references relating to environmental problems. On the other hand, the Block 2 establishes sustainable development as a content, as well as the three sectors, the environmental impact, and the use of resources. Linked to these, the evaluation criteria focus on knowing and analyzing the environmental problems and challenges and the possible ways of facing them, as well as understanding the idea of “sustainable development” and its implications. Finally, in Block 9 it is highlighted, as an evaluation criterion, to recognize the impact that the technological revolution and globalization have on environmental issues. The proposed approach is in practice entirely theoretical, and there are few references that would include an applied treatment.

The subject of **Economics** is contemplated as the core subject for those students who are studying the academic courses in 4th year. Its link with the subject that concerns us is related to the approach of the environment as a key context for economic development. Specifically, in Block 2 (Economics and Business), it is established as a standard of learning to identify different types of companies in an environment, as well as the social and environmental effects that are derived. Additionally, in Block 6, from the approach of the international Economy, a content related to “The economic consideration of the environment: sustainability” is contemplated, which is materialized in an evaluation criteria associated with evaluating the impact of economic globalization and international trade on the quality of life of people and the environment, as well as the consideration of environmental problems in relation to the international economic impact and the analysis of possibilities for sustainable development. It could be said that the treatment of the environment responds to a predominant theoretical approach, leaving the applied approach in second place.

The two topics are also dealt with in **Technology** which, as we have already mentioned, is a specific subject in the first cycle (1st to 3rd year) and a core subject in Applied Teaching in the 4th year. This subject is oriented, among other issues, to encourage students to acquire “technological autonomy behavior with environmental and economic criteria”, showing that these are contents with an eminently applied orientation. In the first three years, we can find an evaluation criterion linked to our study, within Block 1 (Process of solving technological problems). Specifically, it establishes the need to “carry out the technical operations stipulated in a work plan using material and organizational resources with criteria of economy, safety, and respect for the environment”. In the fourth course, the content is “Acquisition of habits that promote sustainable development” (Block 6. Technology and society), although no evaluation criteria or learning standards are specified that would allow this to be materialized in a specific way.

On the other hand, and focusing on subjects where only the environment is mentioned, the highest number of references is in **First Foreign Language** (9.3%). However, as was

the case in Primary Education, the allusions to the concepts which are the object of study in our work are associated with the learning of commonly used vocabulary, where the environment, climate, and natural surroundings are included again.

In the subject of **Ethical Values**, despite being a specific subject throughout the stage, the references are accounts for in the fourth year. In it, we can find three learning standards linked to the environment and framed in Block 3 (Critical reflection), Block 5 (Ethical values, law, the UDHR (Universal Declaration of Human Rights) and other international treaties on human rights) and Block 6 (Ethical values and their relationship with science and technology). In the first of these, the identification of new fields where ethics is applied is established as a standard, the environment being one of them. Meanwhile, Block 5 contemplates the elaboration of an audio-visual presentation on some of the threats to peace and security, recognizing environmental disasters as one of these problems. Finally, in Block 6 the need to take into account ethical and environmental criteria to consider the viability of scientific and technological projects is pointed out. The treatment of the environment is, in this case, mixed, proposing aspects of a theoretical and practical nature.

In the case of **Physical Education**, the two references are also accounts for in the fourth year, where the recognition of the environmental impact of physical and sporting activities and the reflection on their repercussion on the environment are recognized as evaluation criteria. From this, three learning standards are derived, focusing on comparing the effects of different activities on the environment, on relating physical activities in nature to health and on demonstrating habits and attitudes of conservation and protection of the environment, thus providing a theoretical and practical approach to our object of study.

There are also two references in the specific subject of **Initiation to Entrepreneurial and Business Activity**, although in this case in the first cycle (1st to 3rd year). This is an evaluation criterion and its corresponding learning standard in Block 2 (business project), where the need to consider the importance of environmental impact and ensuring the conservation of the environment in the process of starting up a company is highlighted. Although the purpose of these elements is applied, the approach itself is theoretical.

Finally, the subject of **Plastic, Visual, and Audio-visual Education** establishes, for the first cycle, a standard of learning linked to the use of recycled materials to be responsible with the environment, having an applied character.

Overall, the treatment of these two topics is mainly theoretical and not all subjects deal with them in a practical way, as can be seen in the following summary Table 6. (Please note that from the subject “First Foreign Language” to the end of the table, the subjects only refer to the environment and not to sustainability).

Table 6. Summary table of the theoretical or practical approach of “sustainability” and “environment” topics.

Subject	Type of Subject *	Academic year/s	Theoretical Character	Practical Character
Biology and Geology	CR	1° y 3°	Yes	Yes
	CR-AC	4°	Yes	Few
Sciences Applied to Professional Activity	CR-AP	4°	Yes	Yes
Physics and Chemistry	CR	2° y 3°	Yes	Yes
	CR-AC	4°	Yes	Yes
Scientific Culture	SP	4°	Yes	Yes
Geography and History	CR	1°, 2°, 3° y 4°	Yes	No
Economics	CR-AC	4°	Yes	No
Technology	SP	1°, 2° y 3°	No	Yes
	CR-AP	4°	Yes	No

Table 6. Cont.

Subject	Type of Subject *	Academic year/s	Theoretical Character	Practical Character
First Foreign Language	CR	1°, 2°, 3° y 4°	Yes	No
Ethical Values	SP	1°, 2°, 3° y 4°	Yes	Yes
Physical Education	SP	1°, 2°, 3° y 4°	Yes	Yes
Introduction to Entrepreneurial and Business Activity	SP	1°, 2°, 3° y 4°	Yes	No
Plastic, Visual, and Audiovisual Education	SP	1°, 2°, 3° y 4°	No	Yes

Own elaboration. * Abbreviations: Core Subjects (CR), Core Itinerary Subjects—Academic Education (CR–AC), Core Itinerary Subjects—Applied Education (CR–AP). Specific subjects (SP).

4. Discussion

Taking into account that the use of the terms sustainability and environment in Foreign Languages is limited to the learning of vocabulary, and not to providing information or raising awareness among students, we will not take this subject into account when analyzing our results.

This being said, from the previous analysis we can observe that references to sustainability and environment (leaving behind the subject of foreign language) are found in a greater proportion in Compulsory Secondary Education (24 + 88, respectively) than in Primary Education (6 + 6, respectively), however, they are increasing again in Pre-University Education (45 + 81, respectively), the latter being a stage considered as not compulsory.

As can be extracted from our analysis, only 3 subjects from the Primary Education stage contemplate these terms in their regulations, either as content or as a learning standard. While in Compulsory Secondary Education, we can find 11 subjects; however, it is important to point out that only 3 of these subjects (Biology and Geology, Physics and Chemistry, and Geography and History) are core subjects and therefore will be taken by all students, which reduces the number of references to 15 for sustainability and 39 for environment. Although they continue to be a higher number than in Primary Education, the total number of references in Compulsory Secondary Education decreases considerably.

In this sense, as we have previously indicated, we have detected a greater presence of content related to sustainability and the environment outside compulsory education, which means that there will be 38.3% [9] of the Spanish population (according to 2019 data) whose environmental education will be considerably lower, and therefore we will not achieve the objective of raising awareness among the entire population about the importance of sustainability and care for the environment; as indicated by the goals of SDGs 12.7, 12.8, and 13.3 that speak of ensuring that all people everywhere acquire the skills, education, and information necessary to address climate change and promote sustainable development.

It is desirable, in this line, that the incorporation of these issues be integrated from the earliest stages and that they be developed progressively, taking advantage of the plasticity of the brain and the capacity for learning associated with the earliest ages [20]. There are also various studies that have shown that environmental education increases environmental awareness and knowledge in both children and adolescents [21–23]. These studies, together with the fact that 38.3% of the Spanish population does not reach pre-university education, reinforce the need to increase environmental education in the early stages of education.

From a supranational point of view, the European Commission [24] and the European Council [25] recognize the key competences for lifelong learning, including issues related to the sustainable lifestyle. Specifically, linked to the mathematical competence and competence in science, technology, and engineering, it is exposed that a citizen must have a concern for ethical issues and support for both and environmental sustainability. We can find also reference to the sustainability in the Citizenship competence, being a relevant issue the ability to act as responsible citizens to engage effectively with others in common or public interest, including the sustainable development of society and environment. Finally, the

sustainability is also present in the entrepreneurship competence, considering that citizen should also be aware of ethical principles and challenges of sustainable development.

The inclusion of this terms in the international regulation is important, because of the influence that those documents have for the design of the educational policies carried out for the different countries. In fact, in the case of key competencies, they are converted into educational legislation in transversal competences that are present at different stages.

In the case of the terms analyzed in this study, although we can consider that sustainability and environmental education can be included in some of these transversal competences in the Primary Education and in the Secondary Education, there are not explicit references to this phenomenon, making more difficult their implementation in the formative processes

As derived from the normative analysis, the treatment of both questions is mainly theoretical (linked to specific contents of specific subjects) and, if applied, it is more linked to attitudinal than procedural questions. In this way, the approach to sustainability and the environment is limited to a treatment that is divided by subjects and detached from the rest of the curriculum, moving away from the desired transversal treatment that would give it a greater role and presence during the course of compulsory education, as already happens in some cases of higher education [26,27].

Transversal competences are those that comprise the knowledge, skills, abilities, and capacities that any person should have before being incorporated into the labor market and which, therefore, are developed throughout the whole educational process and do not belong exclusively to one curricular area, identifying, in an unequivocal way, with key competences that are commonly assumed at a supranational level [25]. That is why we consider, according to Trot et al. [28], that the terms environment and sustainability or similar should also be considered and implemented as a transversal competence, since it is important to know the challenges of sustainability as it is done in each of the subjects involved, but also to improve environmental awareness through enabling and transforming pedagogies that position children as fundamental actors for a sustainable future [28].

As we have seen, there are considerable improvements in Spanish education policy in terms of the environment and sustainability. However, in Spain, the promotion of environmental education is carried out by the Ministry for Ecological Transition and the Demographic Challenge and not by the Ministry of Education and Professional Training, which makes it difficult to integrate specific issues related to sustainability and environment into the curriculum. As stated by Pociovălișteanu [14], for a correct sustainable development strategy, not only are changes needed in labor market policies, but also in educational policies, and it is therefore necessary for the different ministerial institutions to work together in search of an effective result in terms of sustainable development.

This study is a starting point for future researches. On one hand, the analysis could be extended to other countries, with the aim of comparing educational policies around sustainability and environmental education and overcome the limitation of the analysis of those phenomena from a national approach. It could be interesting, on the other hand, to explore the regional policies of Spain, attending to possible differences in each territory.

Also, since these issues are regarded as lifelong competences, it would be necessary to analyze and discuss how higher education institutions are approaching their development, also linking to professional performance.

It would be important, as well, beyond the integration of these topics into the regulations, to analyze if teachers take them to the classroom in an effective way and if they are prepared to educate in sustainability [29], and their perception about the importance of these issues to the students' training.

5. Conclusions

In this paper, we have analyzed the Spanish policies of compulsory education, which covers ages 6 to 16, in terms of learning and awareness of sustainability and the environment.

Further investigations will be focused in how sustainability is handled in non-compulsory education and how these terms are used in other European countries compulsory education.

With regard to this paper and taking into account the SDG and the commitments made by the various institutions named in this paper (UN, EU, EAP), the conclusions drawn are as follows:

From an institutional point of view, it is necessary that the Ministries of Ecological Transition and the Demographic Challenge and Education and Professional Training join forces to achieve a proper environmental and sustainability education in all the Spanish population.

Correspondingly, and from an educational perspective, it is necessary to increase the presence of the terms environment and sustainability in Spanish educational policies related to compulsory education, since this is the educational level of 38.3% of the Spanish population (25–64 years old) at present.

Lastly, regarding the regulations, we consider that it would be necessary to include the terms environment and sustainability in educational policies as transversal competences and not only as subject content in order to increase the environmental awareness of children and adolescents.

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