



Environmental Education as a Key Element for Values Education

David Pérez-Jorge^{1*}, Yolanda Márquez-Domínguez¹,
Josué Gutiérrez-Barroso², Candelaria de la Merced Díaz-González³
and María Sandra Marrero-Morales⁴

¹Department of Didactics and Educational Research, Faculty of Education, Universidad de la Laguna (ULL), Tenerife, Canary Islands, Spain.

²Department of Sociology, School of Tourism Iriarte, Universidad de La Laguna (ULL), Tenerife, Canary Islands, Spain.

³Canary Healthcare Service, Materno-Insular University Hospital Complex in Gran Canaria, Las Palmas, Spain.

⁴Department of Modern Languages, Professor at Universidad de Las Palmas de Gran Canaria (ULPGC), Faculty of Health Sciences, Las Palmas, Spain.

Authors' contributions

This research has been carried out with the collaboration of all authors. Author DPJ designed the study, wrote the protocol and supervised the work. Authors YMD and JGB carried out all laboratory work and performed the statistical analysis. Author DPJ performed the analyses of the study. Authors DPJ and CMDG wrote the first draft of the manuscript. Author MSMM performed the literature searches and edited the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Environmental degradation and destruction and the disappearance of natural habitats can create many problems. Education, with the objective of achieving a comprehensive development of the individual, plays an important role, without forgetting those values which result from the individuals'

*Corresponding author: E-mail: d pjorge@ull.es;

interaction with their environment. In this sense, we can state that in the school context there is a great concern about Environmental Education, which is considered as one of the most important source of values in the classroom: respect and care, protection and interest in all that surrounds us (natural environments). Environmental Education is of crucial importance in the school context, due to the present progressive environmental degradation, since it promotes the development of basic skills related to the students' active involvement and values development. Therefore, although legislative and social changes should go hand in hand, in Spain Environmental Education came from cross-cutting approaches (what is called *Education for...*(Perrenoud, 2012), with the Education System General Order (*Ley de Ordenación General del Sistema Educativo Español* (LOGSE, 1990). This order tried to promote educational practices which dealt with environmental problems in an interdisciplinary manner, promoting, in this sense, values education in students. Although it is an open approach, this paper aims at justifying the importance of the treatment of Environmental Education, as an educational value, in values education.

Keywords: Environmental education; laws; values education; social and citizen competencies.

1. INTRODUCTION

The overall conception about the environment has determined people's attitude and behaviour, both individually and collectively. This conception conditions the change in attitudes as regards development needs, without affecting the environment, developing consistent moral values [1]. Therefore, the environmental value appears due to this transformation into a more conscious thought and attitude of society towards nature. According to Martín [2], this environmental value is considered as:

(...) a necessary and positive value for the survival of human beings on this planet. In order to overcome all environmental problems and ensure the tranquility of mankind, the environmental value, which is a desired and appreciated value, will promote environmental protection and preservation (p.97).

In this sense, the fact of educating people on the environmental value is related to and based on a series of basic principles (Leff, 1994, p.18) [3] which, in turn, imply a series of teaching strategies and skills:

- Human rights as value in a healthy and productive environment to make local communities organize themselves in order to satisfy social and material needs, taking into account cultural values, ecological contexts and economic conditions.
- The value of biological, cultural and political diversity, and the natural and cultural heritage.
- The value of sustainable development, respecting the ecological diversity of each region.

- The value of social democratization of resources to fight against social inequality and for a quality of life.
- The strengthening of supplies with the development of clean and ecological energies.
- The assessment of the quality of life through a learning process which promotes a responsible consumption.
- Perception of reality from a global perspective which allows us to understand the different factors which can cause socio-environmental changes (environmental awareness).

These principles provide the basis for Environmental Education as regards the training of individuals. Furthermore, in order to work on these principles, it is necessary to place Environmental Education at the centre of other values such as solidarity, cooperation, respect for diversity, autonomy, participation, responsibility, tolerance, etc. as a starting point to achieve the idea of ecosustainable global village [4]. In this sense, the fact of promoting the importance of Environmental Education within the framework of Values Education from a social-environmental ethical action [5] results in a new attitude related to nature and education [6]. Thus, this fact reflects the need to establish the educational foundations and basic skills to promote a greater awareness and social cooperation, offering, therefore, different, direct and interrelated ways of teaching environmental values, making students participate in the process of acquisition of those values related to environmental issues. an opportunity to promote these environmental values. Environmental education must be approached from a cross-cutting manner: it must be included in the

contents related to each subject. It must be compulsory and must be described in the course syllabus. It is necessary to promote and increase awareness in students about a series of environmental attitudes and behaviours which are beneficial for socialization, assimilation and integration of such values and, eventually, for their integral education [7]. Studies such as that of Salazar (2013, p.16) [8] have stated the need for including a cross-cutting approach in the curriculum.

The fact of achieving a change in the students' perceptions, attitudes and values, with the aim of receiving an integral environmental education, which covers both natural and sociocultural aspects [6,9], indicates the relevance of Environmental Education within the framework of Values Education [10]. This change towards environmental respect, Environmental Education as an educational value, has allowed us to establish, according to González Muñoz (1996, p.31) [6], "the planetary mentality which makes us feel members of a great village or crew members of a «spaceship», and which completes these basic principles". Authors such as Coronel and Núñez (2015, p.73) [11] have analyzed the approach to the students' school training from a "socio-scientific perspective", developing and working on environmental issues from the analysis of a close reality and from the reflection on the student's role in the transformation and improvement of that reality. In this sense, it is relevant to enhance the experience as regards involvement and respect for environment and the concern for the environmental future and the health of the planet.

Approaches and experience such as those of Coronel and Núñez [11] and Dresner, Handelman, Braun & Rollwagen-Bollens [12] have proven the efficacy of intervention as regards awareness and improvement of the expectations and commitment to environmental values which can be translated into concern for the future, responsible use of natural resources, respect for natural spaces as our collective spaces.

In fact, Environmental Education must make students develop their own value system from a reflexive and critical view of nature and of those environmental problems. Therefore, knowledge and information are necessary but not sufficient. As da Silva & de Goes [13], Calixto [14] and

Flores [15] state, the way in which the environmental dimension has been approached by educational institutions is emerging. The occasional introduction of some environmental contents leads us to fragmentation, simplification, reductionism, the separation between theory and practice. This approach, which is very common in educational systems in many European countries, is inadequate and poor.

This mentality and the principles derived from it have to be translated into values. Actually, Environmental Education has to promote in students the development of their own system of values, from a reflexive and critical perspective of nature and environmental problems. Thus, we can state that knowledge and information are necessary but they are not sufficient.

In this sense, as González Muñoz (1996, p.32) [6] points out, Environmental Education, which is basically an attitudinal issue, faces one of the most difficult didactical problems: "How do people learn these values?, how do people change their attitude? It is not a matter of indoctrinating or imposing values, but a matter of making students reflect and discover an appropriate system". Therefore, Environmental Education should be approached from all curriculum areas. Its presence is evident in other non-conventional areas related to cross-cutting issues or new subjects referred to as "Education for..." [16], to make students develop competencies, values, attitudes and capacities as regards values of environmental respect.

Consequently, we consider that the fact of promoting Environmental Education from *Education for...*, leads us to interdisciplinarity and to put into practice active and participatory methods. In this sense, we get the cooperation of all disciplines, seeking those basic principles which promote the treatment of environmental issues from any discipline, and making students become agents of their own learning. Moreover, this implies both a change of attitudes and behaviour and the strengthening of the different basic competencies. Some of these competencies are the following ones: the competence of learning to learn, social and citizen competencies, social and civic competencies, the competencies of knowledge and interaction with the physical world through Values Education [17].

2. ENVIRONMENTAL EDUCATION WITHIN THE LEGISLATIVE FRAMEWORK AND ITS TREATMENT/ MANAGEMENT BEYOND THE TRADITIONAL DISCIPLINES: CONSTELLATION OF CROSS-CUTTING SUBJECTS

References made to Environmental Education by those laws regulating the Spanish Educational System are described below.

Environmental Education appears in our current educational system with the General Education Act, which in its article 18.2 (Ministry of Education and Science, 1970) states that "particular attention will be paid to the creation of social educational programmes which lead us to a systematic study of the ecological possibilities in close areas (...)". This article offers us a local vision of Environmental Education focused on project work. This approach was previously focused on solving situations which affected a large group. It was an approach which did not ensure a full acquisition of competencies. Instead, it focused its attention on the knowledge and change of thought as regards the environment.

According to Plata and Martín (2007, p. 2) [18], Environmental Education is considered by the Act on the Regulation of the General Educational System [19] as a subject which is currently studied by students [19], Its article 13 makes reference to the need of developing "capacities in Primary Education students: to value both hygiene and health of their own bodies and nature and environmental conservation; capacities to be developed by secondary school students: to critically value social habits related to health, consumption and environment". Following the enactment of this Act (1990), other elements of study related to educational strategies and competencies about Environmental Education were introduced in the curriculum. This situation implied a development of the idea that the environment was not only related to nature. Tello and Pardo [20] considered that after the enactment of this Act [19], the incorporation of Environmental Education was formalized and it was introduced in all areas and subjects of the curriculum.

Nevertheless, the previous achievements left much to be desired as regards the treatment of Environmental Education in the curriculum. According to Plata and Martín (2007, p.2) [18],

Environmental Education was also present in the Organic Act on the Quality of Education (LOCE, 2002). This Act, and more concretely its article 15.2, states the need of developing such capacities "in Primary School Education: to know and value nature and environment, and to observe patterns of behaviour which favor environmental care; in Secondary School Education: to know the social and cultural environment, from a broad perspective; to value and enjoy the natural environment, promoting its protection and improvement" [21]. This conception leads us to the necessary attitude of appreciation, respect and protection of the natural environment. Principles, values and competencies mentioned above will let Environmental Education acquire legitimacy and a status of relevant impact on the field of education in general.

Following this theoretical approach of promoting action and environmental competencies in students, authors such as Malone [22] and Bretting [23] show the benefits of the Organic Law on Education, [24] which is fully aware of the importance of the environment and considers, as an objective of education (Art.2-e), the importance of promoting the value of respect and offering a cross-cutting approach.

This fact emphasizes once again the significant ethical content of Environmental Education which is closely related to Moral and Civic Education. Ethical values are conditioned to three educational achievements in students: 1) self-knowledge and environmental knowledge, 2) "otherness" or knowledge of others and 3) the appreciation of a general approach which supports this dimension as regards implication of our actions at a global level. This fact is closely related to many environmental problems which have to do with bad habits promoted by a consumer society (waste products, excessive energy cost, etc.). Education has to make a significant effort in this aspect, promoting the development of values related to a responsible consumption which improves environment. This would be one of the examples which would demonstrate which are the subjects covered by Environmental Education from a cross-cutting basis, taking into account the dimension of Values Education:

a) Education for Peace

Education for Peace is reinforced from Environmental Education, as a way of

eradicating violence, acting as a mediator in conflict situations and making use of reflexive strategies and the analysis of conflicts.

b) Moral and Civic Education

It is related to Environmental Education because it participates in collaborative processes, distributing tasks, assigning roles, taking action in assemblies, collaborating in collective decision-making, facing problems collectively and, finally, promoting active citizenship.

c) Environmental Education

Muñoz [25] and Pérez-Jorge, de la Rosa Hormiga, Álvarez, Díaz-González, Marrero-Morales [26] state that:

The integration of Environmental Education in the school curriculum implies the acknowledgement, from the educational system, of the significant role which environment plays in the individuals' lives and in the development of society. It responds to the present request of society to make education contribute to the improvement of our environment. Furthermore, due to the rapid environmental degradation over the last decades, Environmental Education becomes an urgent need which is officially discussed in international meetings and conferences (UNESCO, 1972, p. 2).

d) Road Safety Education

Road Safety Education as a preventive strategy which promotes health and safety. It is necessary to form a future responsible citizenship; its interest in detecting and eradicating some harmful habitual practices (acoustic and air pollution) coincides with the principles of Environmental Education.

Therefore, we could state that all these areas share an interdisciplinary nature and a significant content as regards ethical values, based on reflexive processes which pursue positive changes in students' attitudes. From the perspective of Environmental Education, we can consider that it contributes to the development of the other areas and to the positive influence among individuals.

Nevertheless, with the passing of time, new tools and partners in educational centres were created in order to improve some of these cross-sectional areas, although they were considered as an insufficient resource in educational practice. For example, in order to promote Education for Peace coexistence plans were created with the aim of improving the relationships among members of the educational community. In order to improve Education for Equality of Opportunities the responsible for coeducation is established. The most notorious case was the creation, with the Organic Law on Education [24], of a new subject, Education for Citizenship, which reinforced the cross-sectional subject of Moral and Civic Education. Thus, we can state that the strategy of Environmental Education promoted some of the objectives of Education for Citizenship, such as citizen activism, social relationships, participation in assemblies, collective decision-making, solidarity actions, the right expression of disagreements, the development of a critical attitude, etc.

At present, with the Organic Law on the improvement of Education Quality [17], the subject Education for Citizenship is eliminated and substituted by Education on Social and Civic Values for primary education, and Ethical Values for secondary education. In this sense, Values Education is again included in the curriculum taking into account a transversal and interdisciplinary approach. Nevertheless, the denomination "transversal subjects" has been substituted by "transversal elements" in the Organic Law on the improvement of Education Quality (LOMCE, art. 10, Royal Decree 126/2014) [27], following a purely instrumental criterion which indicated that its content should be worked particularly in subjects such as reading comprehension, speaking, writing skills, audiovisual communication and communication technology, entrepreneurship and civic and constitutional education.

Some transversal subjects which represented Values Education are not explicitly mentioned in the Organic Law on the improvement of Education Quality [17], such as Environmental Education, although they should be considered as values of our society and educational system which have to be particularly studied.

3. DISCUSSION

As we have stated in this research, Environmental Education is of crucial importance in Values Education. In 2002, a

Forum held in Lyon, France, "Globalisation Sustainable Development: Is Ethics the Missing Link?" [28], came to a decisive conclusion: it is essential to promote human rights such as justice, equality, environmental protection, tolerance, solidarity and peace [29].

Environmental Education, as we have stated before, is based on aspects such as respect and solidarity. Both its contents and the approaches to those contents share, necessarily, a set of ethical principles which are characteristic and basic in teaching values [30]. The school context is, therefore, regarded as the place in which values are created. These values influence in general the transformation of attitudes and, more specifically, values of environmental respect. In order to express and support values which promote new attitudes in human beings as regards nature, and in order to enhance the importance of Environmental Education in the student's learning process, it is necessary for students to learn: 1) to show solidarity with our planet; 2) to consider the common good as something based on the collective management of global commons, in other words, to give primacy to collective rights over private rights; and 3) to consider the sense of being before the value of possessing [31,32,33,34].

The inclusion of Environmental Education and the awareness of an eco-sustainable environment through Values Education imply a process of critical analysis which has to produce changes in attitudes and the awareness of socio-environmental processes both at a global and integral level in the student's education. In this sense, didactical strategies and methodological approaches are necessary to promote the structuration of a critical, creative and reflexive thinking, capable of capturing and controlling the complex relations between the natural and the social world around us. This fact will imply the redefinition of new educational scenarios, their learning rates and times, the role of teachers and of all those actors involved in the school practice, the curriculum, its management and the present pedagogical ecosystem [35,36]. These strategies are characterized "according to their transversality and interdisciplinarity among all the subjects in the curriculum and should promote a Values Education which faces the student with the challenge of creating a better society" [37].

As Meira points out [38], Education, in general, and Environmental Education in particular, "should give priority to the fight against social

inequality, apprehending the complexities of its causes and giving both complex and effective answers". When we speak about Environmental Education within the framework of Values Education we have to consider that schools have to help create experiences to promote an integral development of students, "providing them with resources which lead to the creation of an increasingly egalitarian and responsible society, capable of improving citizens' quality of life, without deteriorating our environment and planet" [37].

We can conclude stating that with the application of this approach focused on Environmental Education within the framework of Values Education, greater and solid opportunities appear to let students face, in a more conscious and autonomous way, human and environmental conditions which result from an unequal distribution of resources, social exclusion and marginalization [39].

4. CONCLUSIONS

1. There is not a cross-cutting approach and treatment which let educational centres develop an educational culture as regards the development of environmental values.
2. Educational proposals to intervene from schools, in the field of environmental education, are not designed according to a curriculum planning which let us develop cross-cutting or transversal educational proposals, dealing with environmental values, from different and enriching perspectives.
3. The recognition of the environmental education work from specific facts or days, such as the World Environment day or the World Blackout day, makes educational intervention become an isolated fact far from the reality which makes the students perceive these facts as isolated and irrelevant, motivating because of their novelty more than because of the impression left and the awareness raised.
4. Perhaps, the lack of identity in environmental educational actions as regards the reality of educational centres and their students' characteristics is one of the main problems that society has to redefine in order to develop an awareness of respect and care for the environment. This type of actions will make up the solid bases of a strong and entrenched environmental awareness.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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