Chapter 15
Green Schools in Mexico and Spain: Trends and Critical Perspective

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Abstract As happened in other parts of the world, the strengthening of the environmental dimension in educational processes in the 1990s had its impact on the promotion of green schools in both Mexico and Spain. They have been promoted for practically all educational levels from primary schools to universities, in the latter through various strategies, among which green campuses stand out. The scope of these programs has also varied. In general, they intend to contribute to the formation of environmental values that promote, through collaborative work, comprehensive environmental management actions to achieve an environmentally responsible citizenship. In recent years there has been a notable boost to the creation of national and international networks of schools and educational centers that share their sustainability projects and collaborate in the generation and transfer of pedagogical approaches and teaching materials. This chapter critically analyzes the development of these actions in Mexico and Spain, as well as their scope and medium and long-term impacts on school education processes and on the movement on education for sustainable development in both countries.

15.1 Introduction

Like similar actions taken in other parts of the world, the introduction of the environmental dimension in the educative process in the 1990s had an impact on fomenting green schools, both in Mexico and in Spain (Perales-Palacios et al. 2014).

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These programs have borne different names, according to the entities promoting them, which range from public and private bodies, to foreign foundations and institutions, as well as to projects operated by NGOs. Among the most common names are green schools, schools Agenda 21, eco-schools and, more recently, sustainable schools or schools for sustainability. They have been promoted practically at all levels and in all types of education, from elementary schools to universities. In the latter, through different strategies, among which some of the most important are green campuses (Gonzalez-Gaudiano et al. 2016).

The range of these programs has also been varied. Generally, they aim at contributing to the shaping of environmental values among the population with the objective of fomenting, through collaborative work, global actions of environmental management, all aimed at developing an environmentally responsible citizen base that might contribute with solidarity to the social change required by the situation of planetary emergency. Such programs usually involve the entire educational community which includes students, teachers, heads of family, management and administrative staff. School projects are usually based on the design of strategies and actions in keeping with the problems and characteristics of the educational centers and their environment. Other projects have a narrower range, oriented towards the preservation of common goods through fomenting school vegetable gardens or school production units in order to improve livelihoods based on learning in the garden, as well as to strengthen food safety, nutrition and health in children. The most substantive projects and programs foster the students' protagonism and empowerment, and have a direct impact (more or less successful) on local or regional environmental policies, as well as on promoting social change. In recent years, there has been a considerable growth in the creation of national and international networks of schools that share their sustainability projects and cooperate in creating and transmitting pedagogical approaches and resources.

Although there are activities that have continued throughout the years, many programs, especially those promoted by public entities and organizations, have been vulnerable in the face of governmental policies, as well as of the changing priorities of both the educational and the environmental sector due to changes in administration. This chapter offers a critical analysis of the development of these activities in Mexico and in Spain, as well as of their range and impact in the medium and long term on the school educational processes, and plots some possible courses of action for the future.

15.2 Green Schools in Mexico

As in other countries, in Mexico fomenting greener schools has raised interest. Although initially the International Environmental Education Program (IEEP, UNEP-UNESCO 1975–1995) had focused a great deal on the strengthening of academic tasks (i.e., curriculum, teacher training, extracurricular activities), in Mexico this did not have a great effect given that the Secretariat of Public Education (in

Spanish: Secretaría de Educación Pública, SEP), the organ officially responsible for regulating the activity of public schools, ignored such recommendations. It was the Secretariat of Environment, Natural Resources and Fisheries (in Spanish: Secretaría de Medio Ambiente, Recursos Naturales y Pesca, SEMARNAP) who picked up the banner of change and, especially during the second half of the nineties, promoted the acceptance of such commitments by the SEP.

The SEMARNAP was created in 1995, thus materializing for the first time in ministerial form a set of aspirations and social struggles in order to promote environment to the level of national policies. This achievement was also the result of the development of a complex network of global, regional and national agreements, but also of commitments taken on the basis of commercial agreements, of the expansion of information and communication technologies, as well as of the new context of exchange that is a result of economic, cultural and political globalization, among other aspects.

Together with SEMARNAP, the Center for Training and Education for Sustainable Development (in Spanish: Centro de Educación y Capacitación para el Desarrollo Sustentable – CECADESU) was created, and soon became the axis of environmental advocacy. This has become ever more evident since the establishment in 1983 of the first department of Environmental Education in the federal government, although within the area of environmental management. A problem stemming from this institutional affiliation is that education is considered an instrument of environmental management; from this point of view, without intrinsic objectives, the function of education is to contribute to achieving the ecological conservation of the territory and environmental quality, among other aims.

Despite jurisdiction and conceptual limitations, CECADESU developed an ambitious program that also included strengthening educational processes at a school level. To this end, agreements of institutional coordination were signed between the two sectors of the federal government (environmental and educational) in order to carry out different activities, such as updating school curricula, strengthening textbooks, and organizing primary teacher training courses. This process was not continuous, as the changes in administrative staff in the educational sector made it necessary to frequently reformulate the criteria and scope of joint projects. These agreements were renewed between 1994 and 2012, when they were finally terminated.

During these 18 years, important programs were initiated, such as Clean Schools between 2000 and 2006, program which supported public schools that developed environmental protection actions. Schools' participation in the program was voluntary and their main focus was managing the solid waste they produced. In 2011, the Secretariat of Environment and Natural Resources (in Spanish: Secretaría de Medio Ambiente y Recursos Naturales – SEMARNAT), through the Center for Training and Education for Sustainable Development (CECADESU) launched a pilot test for the environmental certification of schools (Green Schools Program), but with the change in federal government in 2012 this program was shut down without an evaluation of its first results. This has been the most global governmental proposal that fostered school environmental management and could have contributed to a change

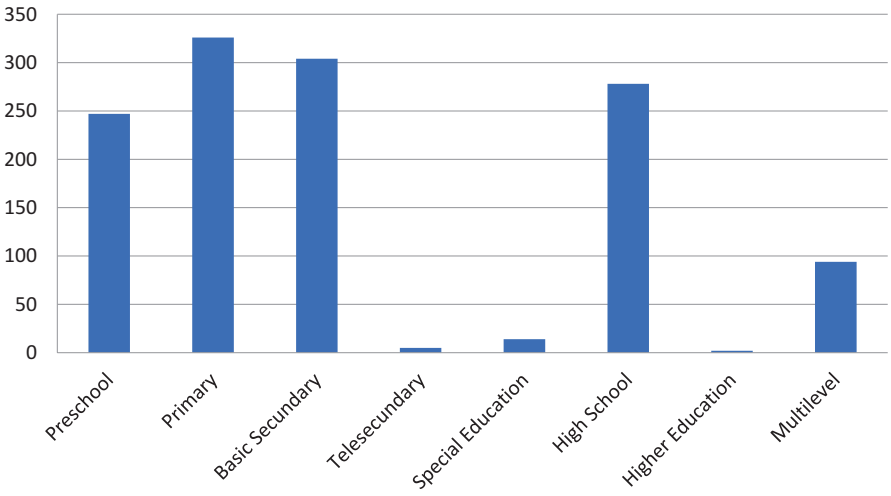

Fig. 15.1 Schools certified as green by educational level in Mexico (2013). (Source: Prepared by the authors, with 2013 data provided by Teresita Maldonado Salazar)

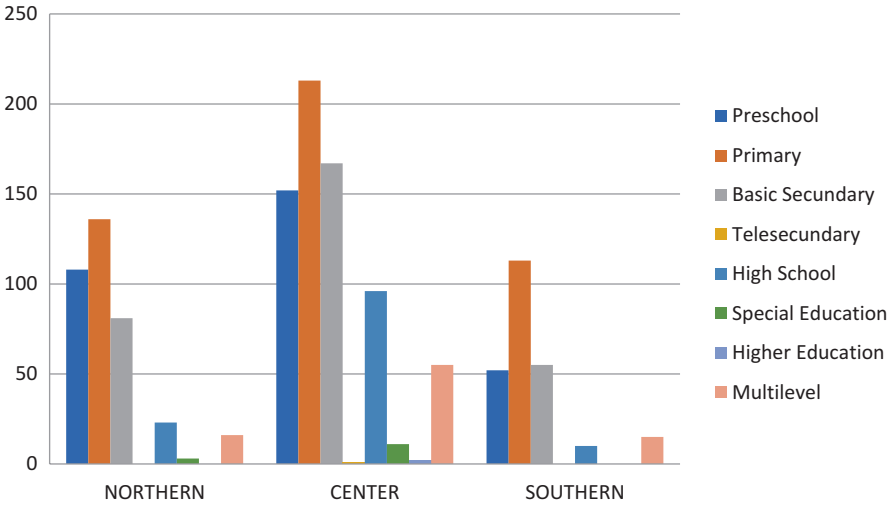

Fig. 15.2 Certified green schools by region in Mexico (2013). (Source: Prepared by the authors, with 2013 data provided by Teresita Maldonado Salazar)

in regular school routines; unfortunately, it was launched when the term of the federal administration was close to coming to an end, so there was no time for it to be adopted by a larger number of educational units. Despite this, the program certified more than 1200 schools, though there has been no further monitoring in order to know how many continue work on their own.

Figures 15.1 and 15.2 show that most schools are grouped together at the level of primary and secondary education. Although the program was not aimed at universities, a small number of private institutions wanted to be certified.

Participation in the Green Schools Program was voluntary. In this program, schools formed an environmental committee, made a diagnostic of their environmental situation, designed an action plan to respond interests and problems identified in the diagnostic, and carried out activities of their own proposal. On the basis of their achievements, CECADESU issued them a certification on four levels, in the view of consolidating a permanent program that might serve as an example of leadership and good practices for other schools. Schools organized activities in different areas, such as: primary teacher training, curricular and extracurricular pedagogical programs, appropriate management of solid waste produced by the school, water and energy-saving activities, as well as activities for environmental improvement in the community, with the participation of local families, authorities and NGOs, addresses to establishing and maintaining green areas in the school area of influence, recyclable material collection campaigns and water leak prevention programs, among others (CECADESU 2011).

The Green Schools Program contributed to strengthening a large number of isolated activities that had been carried out in schools for some time, fomented by the initiative of primary school teachers or directors, both in public, and in private institutions. These experiences have now been adopted by a larger number of schools, as well as by other educational levels and forms, ranging from preschool units to universities, forming networks. Thus, it is possible to encounter a very diverse range of experiences denominated green, environmental, ecologic, sustainable and even self-sustainable (sic), usually without a clear definition of the reason for their conceptual choice. In contrast to Spain and other countries, the denomination School Agenda 21 has practically had no use in Mexico.

These school experiences have been promoted by local or State governmental institutions, resulting in their support being vulnerable to changes in administration, but most are fomented by non-governmental organizations and groups of individuals organized around nonprofit projects, some of which supported by companies, such as Coca-Cola Foundation or ADO Foundation. These do not tend to be programs that undergo periodic evaluation, and their success indicator tend to consist of their number of participants. Some examples of the diversity of such experiences are:

- The Network of Schools for Education and Environmental Awareness (in Spanish: Reeduca), supported by an NGO, focuses on fomenting the exchange of proposals on specific environmental actions and creating a connection between educational centers. This project was established in 2009, when it only included 9 schools; now more than 300 schools, both public and private, are a part of this network. This program includes from kindergartens to universities. Reeduca has organized ten Schools for Sustainability encounters, built around different central axes ranging from consumption to biodiversity and waste. The activity of the Network is available at https://www.reeducamexico.org/conoce-reeduca.

- The Safe, Healthy and Sustainable School program is part of the Non-Formal Education programs of the Department of Education of the State of Nuevo León. It was established in 2006 with the objective of fomenting awareness on health, safety and environment issues within the school community and in families. It is based on carrying out a diagnostic in order to determine the actions that need to be accomplished, coordinated by a Technical Council integrated by three Subcommittees for each school: Health, Safety, and Sustainability. These subcommittees carry out the diagnostic and plan activities in the three areas with the support of a guidebook. A monthly report is issued on the activities carried out (De León Rodríguez and Infante Bonfiglio 2014).
- The Sustainable Schools Network is a project established in 2008 on the basis of a participative methodology of school sustainability education and management, with a view to supporting public and private primary schools in the States of Mexico, Morelos and Michoacán. The main interests of this project are solid waste, responsible consumption, vegetable gardens and healthy nutrition. Their activity is available at http://fundacionflorycanto.org/escuela-sustentable/escuelas-participantes/
- The Eco-Schools Program (Network) promotes educational processes addressed to the educational community in general, through teacher training, establishing eco-audit for environmental improvement and developing educational resources, addressed to all educational levels, from pre-basic to secondary education. It offers certification to educational centers based on the ISO 14000 standard. Apart from Mexico, this program has been implemented in Bolivia and Peru. Its activities are available at https://www.fondoverde.org/soluciones/programas-internacionales/programa-ecoescuelas.
- Finally, UNESCO Associated Schools' Network (ASPnet; in Spanish: redPEA), operating in numerous countries, works in support of international understanding, peace, intercultural dialogue, quality education in practice, but also education for sustainable development, and, more recently, with the help of the Japanese government, is carrying out a pilot project on climate change education. In Mexico, more than 600 schools from 27 States are members of this network. Their activity is available at https://aspnet.unesco.org/es-es/Paginas/Acerca_de_la_red.aspx.

15.3 "Green Schools" in Spain

In Spain, the end of the UNESCO-UNEP International Environmental Education Programme (IEEP) coincided with two key references for the understanding of the institutionalization of EE (environmental education) in the national school system. Firstly, the Organic General Law of the Educational System (in Spanish: LOGSE 1990) was in full development. In its preamble, Article 2, the Organic Law established the following educational principles, among others: "the relationship with the social, economic, and cultural context" and "education for the respect and defense

of the environment". To this end it is recommendable to "foment the implication of educational centers in the environmental problems of their context and of the rest of humanity" (MOPU 1988, 26). Nevertheless, this perspective favoring the 'greening' of school centers – a concept which is not used throughout the entire document - is diluted to a constructivist model of learning-teaching that gives more importance to individual learning than to its social and community dimension.

Partly taking into account these recommendations, the LOGSE introduces two referential innovations. On the one hand, social and ecological contents, traditionally divided into disciplines, are unified in the Natural, Cultural, and Social Environment Subject Area. On the other, Environmental Education is identified as one of the "cross-cutting issues", understood as a topic that references socially relevant contents that, through their complex and transdisciplinary nature, cannot be assigned to a certain curricular area, but rather must be addresses in different areas with a view to fomenting comprehensive training.

Secondly, in the third Spanish Conference on Environmental Education (Pamplona 1998) the *White Paper on Environmental Education in Spain* (1999) was presented. With reference to formal education, this document proposes as objective "Ensuring a real presence at the level of the educational system of a comprehensive, global, permanent model of Environmental Education, within the framework of values education", in concordance with the interpretation of school Environmental Education established in the LOGSE (MOPU 1999).

The expectations stirred by these changes in school Environmental Education did not achieve their full potential for different causes: insufficient public inversion in the development of the educational reform, lack of commitment on the part of the different agents involved in EE, insufficient teacher training, lack of coordination between educational and environmental administrations, and the rejection of the LOGSE on the part of the most conservative areas of society in the full scope of their positions. Nevertheless, the development of EE as a cross-cutting area was unbalanced as a direct result of the decentralized nature of the Spanish Educational System, where a large part of education authority has been transferred to the Autonomous Regions. This circumstance allowed for the local or regional administrations of some Autonomous Regions (Catalonia, Basque Country, Andalusia, etc.) to develop more ambitious EE activities, including programs in support of the "greening" of school centers. Nevertheless, in general lines, we might say that the LOGSE, rather than being committed to the greening of educational centers in their interaction with their communities, focused on the greening of the curriculum. As already shown, this bias was influenced by the adoption of a psycho-constructivist teaching-learning model, where the social and environmental dimensions of the educational act were a secondary consideration (Meira 1993). On the other hand, the *White Paper on Environmental Education in Spain* gradually became less relevant as an institutional framework of reference, and its recommendations had a limited impact on schools. It can be said that in this stage the focus was on the greening of the curriculum, rather than on the development of school projects that might combine curriculum aspects with others connected to an environmentally

cohesive management of the centers and its projection within the school community, as well as in the respective local community.

Despite the inconsistencies in the pedagogical and EE model structured by the LOGSE, Spanish schools experienced a certain environmental effervescence in the 1990s. The echoes of the 1992 United Nations Conference on Environment and Development (Rio Summit) channeled many of the efforts that teachers, individually or in small groups, were integrating into their educational centers, often without institutional support. This way, the eco-auditing processes that aim to involve the entire educational community extend throughout the academic world, and the Eco-Schools Program, promoted by the Foundation for Environmental Education, was successful in some centers concerned about the role of the educational system in the face of the eco-social crisis.

In 2002, the Johannesburg Summit proposed integrating sustainable development into education systems at all levels in order to promote the role of education as a key agent of change and recommended promoting a decade of sustainable development education to start in 2005 (ONU 2002). The possibility that the Government of Spain might assume the implications of this commitment was cut short in 2006, when a new Organic Law of Education (in Spanish: LOE) appeared. Said Law, while maintaining the generic postulates of the LOGSE, proceeded to suppress cross-cutting issues. With the LOE, a curricular approach based on educational competences was adopted. The subject area of Education for Citizenship and Human Rights emerged as a possibility to include the EE in the curriculum, but this sparked social contestation from the most conservative social and political sectors.

However, in this context, pursuing the fact that local administrations developed their commitments adopted at the 1992 Rio Summit with the Aalborg Charter and the Local Agenda 21, many environmental education programs adapted to the new times by seeking synergies with these processes, mainly through adapting the Agenda 21 model to the school environment. The programs that followed this model no longer only involved the school institution, but also its educational community, including local administration, and worked towards the sustainability of the educational center, the community and the municipality. These projects addressed both ecological and social issues, in which the students' participation and protagonism became key elements.

The programs continued to develop under different names and with different degrees of involvement and support from local authorities, depending on their commitment to the Local Agenda 21. In some cases, it was non-existent, and eco-audits and eco-school processes continued to be developed. In others, the School Agenda 21 became an important part of the development of the Local Agenda 21. In between these extremes, a wide range of programs and projects of different ambitions were developed.

The financial crisis of 2007 meant the drastic reduction in the supply of environmental education centers, programs and public aid to EE in general, whose existence was important for the initiatives developed in the school framework. Even so, many centers continue carrying out actions in favor of sustainability, substituting real visits for virtual activities and for information searches on the Internet. The use

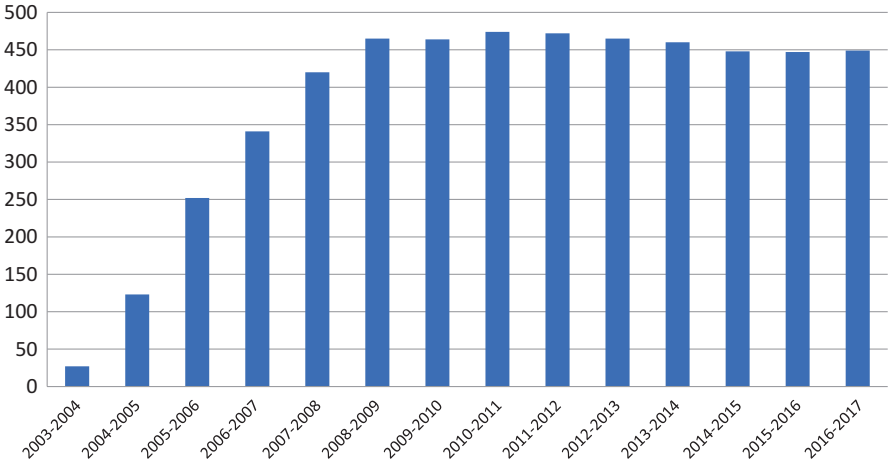

Fig. 15.3 Evolution of the number of centers in the Basque Country that have adopted School Agenda 21 since its creation. (Source: Ingurugela 2017)

of new technologies mitigated, in part, the scarcity of resources for carrying out field trips and activities in specialized EE centers. Furthermore, through the creation of webs and blogs run by the students themselves, the new technologies helped give voice to the schools in the face of eco-social issues.

In 2013, the Organic Law for the Improvement of Educational Quality (in Spanish: LOMCE) was passed, which deepened the educational regression initiated with the LOE. The new Law divided the social and natural sciences into different areas, while Education for Citizenship and Human Rights, which offered curricular space and time for EE, disappeared.

Spain has been a member of the Foundation for Environmental Education's (FEE) Eco-Schools international program since 1996. Currently, there are 549 Spanish schools in the network, involving 12,110 teachers and 14,4075 students. The Andalusian Eco-schools Network has the largest State involvement: 346 educational centers, more than 9000 teachers and some 100,000 students (Junta de Andalucía 2015). This network is part of ALDEA, the Environmental Education program of Andalusia, with a trajectory of more than 25 years, and that in the school year 2015/2016 included 2445 educational centers, 37,110 teachers and 441,748 students (Junta de Andalucía 2016).

At the level of the Spanish State, the relative decentralization that allows territorial organization in autonomous regions has facilitated in some of these regions the development of specific "green school" educational programs that have been able to overcome the combined impacts on the education system of the crisis and the various educational reforms. This is the case of the Government of the Basque Country, through the School Agenda 21 in this autonomous community. The network of public facilities responsible for moving this experience forward was created in 1989 under the name of CEIDA (Centers for Education and Environmental Didactic

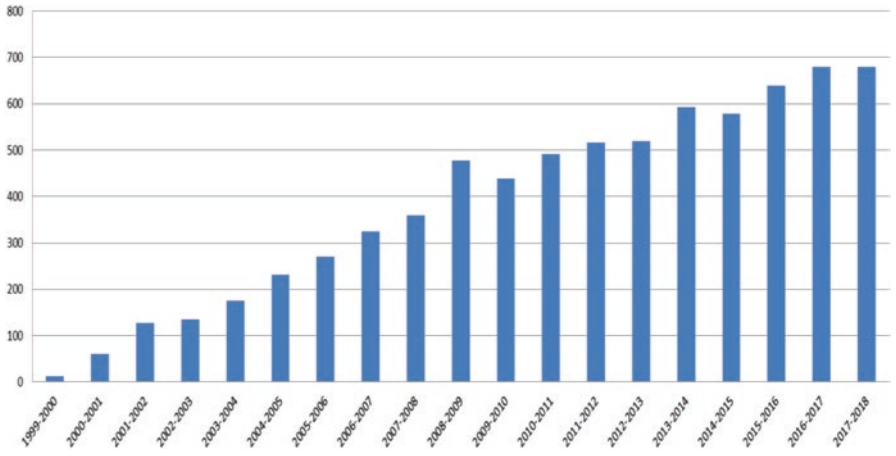

Fig. 15.4 Evolution of the number of centres in Catalonia's Escoles Verdes program. (Source: Prepared by the authors on the basis of data from the Department of Territory and Sustainability 2018)

Research). This network, which changed its name to Ingurugela in 2005[1] forms a platform in which educational and environmental administrations collaborate to promote Environmental Education in the regional education system through training, research, advice, preparation of teaching resources and awareness campaigns. The School Agenda 21 program began in the 2003–2004 academic year, with the participation of 27 compulsory education centers, and reached its peak of participation in the 2010–2011 academic year, with 474 centers (see Fig. 15.3) and later maintained a steady number of members despite the crisis. This evolution has meant moving from 8330 students of primary education and compulsory secondary education in 2003–2004, to 229,134 students in the 2016–2017 academic year, covering 64% of the schools in the region (Ingurugela 2017). In addition to training and advice, the program provides direct aid to the centers involved, namely 700,000 euros per year (having reached 1,100,000 euros before the crisis).

Another Spanish region that has been groundbreaking in promoting Environmental Education in its centers is Catalonia, as reflected in Fig. 15.4 with data from the Escolles Verdes program. Created in 1998, this program is promoted by the Department of Territory and Sustainability in coordination with the Departament d'Ensenyament, which provides training, material resources and advice.

Within Catalonia, it is worth mentioning Barcelona, where the Escoles + Sostenibles program (previously School Agenda 21) has had a great success with 352 centers involved, which represented 37% of the total (see Fig. 15.5). The program also offers training, material resources and advice.

In parallel with these developments, faced with the difficulties that arise from the official curricular framework, in the school environment, projects evolved seeking

[1] Information on the history and activity of the School Agenda 21 in Basque Country is available at: http://www.euskadi.eus/centros-ingurugela/web01-a2inghez/es/

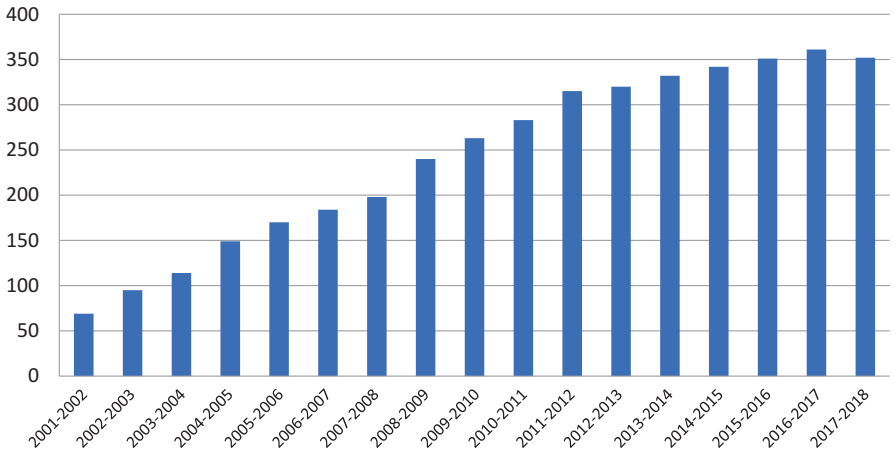

Fig. 15.5 Evolution of the number of centers of the Escoles+Sostenibles program (previously called School Agenda 21) of Barcelona. (Source: Prepared by the authors on the basis of data from the Secretary of Barcelona Escoles+Sostenibles (2018))

new approaches, scenarios, and synergies through networking between primary and secondary schools that had turned environmental problems into axis of their social and educational commitment. One of the first networks to be set up in Spain is the Xarxa d'escoles per a la Sostenibilitat de Catalunya (XESC, Catalonian Network of Schools for Sustainability). Today, it includes networks of schools in 17 municipalities, with 1363 educational centers, which represents 28% of the total of the Catalan educational network.

The creation of the XESC was the seed of ESenRED (Schools towards Sustainability in the Network, esenred.blogspot.com), the network of non-university sustainable educational centers promoted by public administrations throughout the Spanish State (autonomous communities, town halls or councils). ESenRED is a network that encourages meeting and exchange between the different networks of actions, resources, materials and ideas; promotes reflection, evaluation and innovation; develops common or shared projects that seek to improve the students' competency-based learning, through their protagonism, as well as that of the teaching professional training (4 symposia for teachers have already been organized); and establishes relations and common projects with other international networks of schools towards sustainability. Currently, it brings together the networks that appear in Table 15.1.

In its common projects, ESenRED promotes the International Youth Conference (Confint), a process that seeks to empower young people for themselves, their community and in face of the global eco-social crisis (Gutiérrez Bastida 2014). It is based on principles such as "the young learn with the young", "one generation learns with another" and "the young choose the young", and on levels of development such as school, regional, state, European and international. Confint is based on the concept of responsibility, offers absolute prominence to those who learn under

Table 15.1 ESenRED Networks, with data on the number of centers, teachers and students

Autonomous Region or Province	Network	N° Centers	N° Teachers	N° Students
Albacete	**Agenda 21 schools** (Agenda 21 escolar)	39	1112	11.482
Andalucía	**Andalusian Ecoschools network** (Red Andaluza de Ecoescuelas)	310	8.224	96.202
Canarias	**RedEcos**	198	6.300	95.000
Cataluña	**XESC**	1.356	39.657	466.898
Illes Balears	**Eco-environmental Centers** (Centres Ecoambientals)	150	–	72.411
La Rioja	**Centers towards sustainability** (Centros hacia la Sostenibilidad)	22	222	9.462
Madrid (municipality)	**Network educate today for a more sustainable Madrid** (Red Educar hoy por un Madrid más Sostenible)	114	2.324	69.724
Madrid (autonomous community)	**Network of sustainable schools of Community of Madrid** (Red de Escuelas Sostenibles de la Comunidad de Madrid)	36	276	5.800
Málaga	**Agenda 21 schools** (Agenda 21 escolar)	7	–	8.000
Murcia	**ESenRED**	33	265	5.000
Navarra	**Network of sustainable schools of Navarra** (Red de Escuelas Sostenibles de Navarra)	56	391	27.108
País Vasco	**IRAES-schools toward sustainability network** (IRAES-red de Escuelas hacia la Sostenibilidad)	443	18.903	229.322
Palencia	**Schools for sustainability** (Escuelas Para la Sostenibilidad)	14	258	2.630
Total		2.778	77.932	1.099.039

Freire's educational principles, and brings together commitment with social and political action, leading to the presentation of conclusions, commitments and proposals before the corresponding authorities at each level. In 2018 the fourth State Confint (Albacete) and the third European Confint (Lisbon) were held.

In recent years, we can find a diversity of projects, networks, and regional, state or international programs. Rare is the center that does not have any action protocol to reduce the consumption of paper, water or energy, or for the collection of waste; there are many who have a school vegetable garden as an educational space; there are quite a few who work with advertising, responsible consumption, noise, healthy and sustainable food, and campaigns to reduce consumption of palm oil, fast food, and over-sweetened soft drinks. Issues such as the ecological footprint, climate change, ecological debt or loss of biodiversity, as well as major international agreements such as the Paris Agreement or the UN Sustainable Development Goals by 2030, have entered the classroom. There are many centers that organize solidarity

markets to send funds or necessary resources to the Food Bank, to the Sahara or to impoverished countries.

After the financial crisis, environmental education centers once more receive massive numbers of visits from schools. Likewise, there is an increase in recognition for centers that demonstrate quality in their work towards sustainability (certificates, flags, badges, etc.). Also, an increase in the educational offer and of interest on the part of teachers (given the increasing relevance of this problem) is noticeable.

15.4 Green Schools and Education for Sustainable Development

Neither in Mexico, nor in Spain has the concept of education for sustainable development had a great impact. However, as the names of the different programs mentioned show, the concept of environmental education tends to be associated with "sustainability". In general, there is more focus on sustainability or on a culture of sustainability, than on sustainable development. This has been both a result of the debate on the concept of ESD that took place over the first decade of the century, and of the fact that the process of integrating environmental education in these countries has generated an important political and pedagogic capital that might have been underappreciated should one term simply replace the other. Cultural changes take time.

As shown in Fig. 15.6, not even on a global level has the concept of "Education for Sustainable Development" become as relevant as the concepts of "Environmental Education" or "Educación Ambiental" in the framework of a comparative analysis of the evolution of searches for these three terms. If this analysis carried out with the

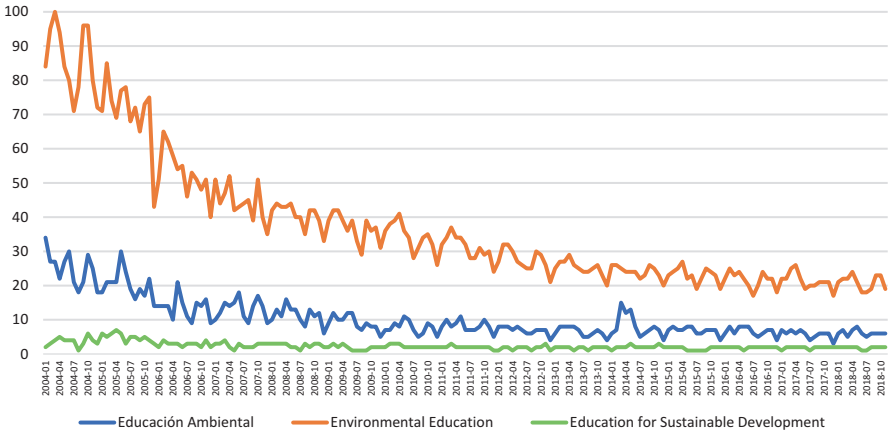

Fig. 15.6 Relative importance of Google searches using the key words "Environmental Education", "Educación Ambiental" y "Education for Sustainable Development" (worldwide): 01-2004 to 11-2018. (Prepared by the authors using the Google Trends tool)

Google Trends tool is reduced to the searches performed in Spain or Mexico, the concept of (Sp) "Educación para el Desarrollo Sostenible" ("Education for Sustainable Development") yields a completely negative result. From our point of view, these data show the low degree of relevance and the limited penetration that the discourse of Education for Sustainable Development has had in Latin American countries.

Given this scenario, from the point of view of the educational system, what is the reason for the lack of promotion of environmental education when it is more necessary than ever? It is true that the evolution of environmental education may have at a certain point stagnated due to focusing on issues and perspectives that proved to be limited given the complexity of present challenges. Sustainability was then seen as a promise in order to make the fundamental change of perspective needed. In practice though, this process has not been entirely successful, at least not in the region we, the authors, come from. It has been like a sort of palimpsest where ESD has tried to write over the institutional, and to some respect also the conceptual, platform built by EE over the course of three decades. Actually, we note that in the Latin American countries where ESD has had greater impact, such as Colombia, basically the same EE programs and projects are being fomented, only that, now, on behalf of ESD.

It is certain that many of the great challenges we are faced with, and that we will be faced with on a larger scale over the course of this century, such as climate change, cannot be correctly defined by solely using a reductionist environmental approach. Nevertheless, they have an undeniable environmental background. Subsuming the environmental dimension of these challenges to the concept of sustainability is to many unconvincing, thus the need to adopt other related concepts. Therefore, over the course of these years the green schools movement has not only reactivated many environmental education programs that had suffered cuts in funding, but also it has strengthened their approaches by focusing on building ecocitizenship (Sauvé 2014; Sauvé and Asselin 2017). Nevertheless, this process supporting green schools has been subjected to important restrictions and limitations of different kinds and scopes, as we shall see in the next section.

15.5 Critical Analysis

The response of Mexico and Spain to the planetary emergency situation faced by the living systems of the planet, from the perspective of formal Environmental Education, has not had the required impetus, nor the desired results. The capacity of Environmental Education, in general, and school EE, in particular, has been very limited for various reasons.

The first, perhaps, lies in the very essence of education. As affirmed by Victoria Camps (2011), "sometimes it is difficult to believe that education is useful because the results are very long-term and are rarely verifiable" (p. 118). Education is a process that can bear fruit in the long term, when a specific situation or context

awakens knowledge that had laid dormant for some time. Clear examples are the response of an important sector of the population to a catastrophe such as the sinking of the Prestige tanker and the pollution of the Galician coasts at the beginning of this century (Meira 2005), and the social mobilization against the Caballo Blanco open-cut mining project in Veracruz, Mexico, with the result that communities in several municipalities have declared themselves free from toxic mining (Diario de Xalapa 2018). Therefore, it is difficult to measure the real impact of the processes of Environmental Education in compulsory education.

The school institutional context can be a great obstacle for Environmental Education. The systemic characteristics and complexity of the global eco-social crisis tend to minimize the efforts of schools to incorporate the culture of sustainability into their educational project. Likewise, they hinder the perception of their usefulness, and the positive added effects that are actually generated at different scales, from local to global. Through Environmental Education, students may well learn in the classroom values and attitudes related to solidarity, responsible consumption and healthy eating, while upon leaving class they encounter competitiveness, consumerism or fast food abounding in excess sugars and fats. Through the colonization of subjectivity, from childhood to adulthood, by using the tools of marketing and advertising, the market creates artificial needs and sets up lifestyles difficult to manage.

In addition, financial crises and management changes often directly affect environmental programs, including those that promote environmental education, so they are the first to be removed from government initiatives and lose importance among the priorities of the political agenda.

On the other hand, there are also those who think that the short history of Environmental Education is part of the general educational crisis, manifested in the different reforms of the education system that occurred in Mexico and Spain – and in many more countries – in the last decades, tending to put the school apparatus at the service of the demands and needs of the market, which coincide less and less with the demands and needs of human societies and with the objective environmental conditions in which these should be met.

Governments and public administrations congratulate themselves for signing international agreements and treaties in favor of Environmental Education and show their willingness to contribute to sustainability. However, only on rare occasions do these adhesions become commitments with real budgets. On the contrary: in more than one occasion, they turn out to be obstacles to their development. As has happened in recent decades, both in Mexico and in Spain, the different changes in government have resulted in new objectives, different laws, changing civil service, etc., and even new curricula. If a government has tried to commit itself to Environmental Education, its successor tends to dismantle the attempts of the previous one.

In this context, multinational companies and financial institutions increasingly invest in sweetened, superficial and uncritical Environmental Education programs that promote generalized blame, changes in individual habits, and cosmetic modifications in the socioeconomic system when these allow for the imperatives of growth

and the generation of benefits. Environmental Education on the issue of waste offers multiple examples of a garbage pedagogy perfectly integrated into the dominant model of production and consumption. The socio-ecological transition that might offer hope to overcome the leading to collapse is not included in the institutional school agenda.

However, the relative autonomy of school institutions also provides elements of critical analysis, conflict and contradiction. One of the main reasons for the limited development of Environmental Education is found in the way schools are organized. Primary schools, secondary schools, and high schools maintain an obsolete organization and functioning system, based on a nineteenth century conception, which is unable to address educational innovations, in general, and Environmental Education, in particular. The Environmental Education programs require new structures (e.g., environmental committees) that open participation to all levels of the educational community, but clash with the models of school organization still prevailing. The organization of assemblies, debates or, simply, simulation games requires a flexibility in the organization of subjects, spaces, groups, and schedules that hardly is understood within the confines of the school.

Furthermore, teacher training is far from adequate. Although it is true that the offer has increased ostensibly, it is also true that the vast majority of teachers suffer from a lack of knowledge about environmental issues that might help to better fit Environmental Education into the curriculum.

On the other hand, school networks, mainly, are centralized networks where communication, proposals and monitoring arise between the node and each center of the network rather than in the form of a mesh, between different centers or networks among themselves.

Finally, formal environmental education has focused more on raising awareness, acquiring habits, and aesthetic aspects, than on empowerment, reflection-action processes, or ethical and political-social reasoning. Over the years, the level of school activism has not been overcome, and learning to think has been insufficiently encouraged, as there is little reflection that critically links curricular praxis with the conceptions of society and its relations with the environment.

Looking to the future, focusing on the school environment, mechanisms should be established so that governments might comply with and develop the agreements on Environmental Education they have signed, in the manner of what is being done with sustainable development goals. And this, especially, at the level of local administrations, since a context striving for sustainability would be a great ally for Environmental Education in educational centers.

Within this environment, there are social agents, associations, NGOs, etc. with which schools should establish connections and create networks between unequal members. These agents offer new possibilities of knowledge and growth, of projects linked to the near reality, of innovative relationships that allow access to other social actors working for sustainability and social change. It is the moment of networks, networks of schools, networks of centers and social agents, networks of networks, etc. In networks there is the collaboration, the complementation, the community articulation that enriches the work of each agent insofar as one collaborates with

others in a stable and systematic way, sharing leadership and resources, coordinating efforts and actions, or encouraging dialogue and agreement. In networks, the positive overall effect of local school initiatives and their added value, both objective and subjective, can be made visible.

In such a process, the university is a key agent. In this respect, on the one hand, it is essential to increase research in Environmental Education, research merged with action, to improve processes, build solid theoretical foundations and exemplify sustainable educational action. On the other hand, collaboration between universities and schools is essential so that actions taken at school level might benefit from follow-up, evaluation and proposals for improvement in the work of educating in and for sustainability through research. Schools can also be a good laboratory for universities, so the synergies that can be generated in the future will be of great value (Benayas et al. 2017).

However, there is a great deal of room for improvement in the school itself. Firstly, Environmental Education projects should not be a complement or a subsidiary addition to curricular activity. On the contrary, at first, these developments should be a part of the centers' educational projects, their aims and objectives. It should be remembered that the Environmental Education movement was born in the 1960s and 1970s with the aspiration of being a catalyst for educational innovation, and not just another issue or area of the school curriculum. In a second moment, Environmental Education can become an integrating element of the educational project of the center, since its ethical and socio-cultural approach, its complexity and its educational and administrative extension allow to establish the bases, the personality and the lines of action of an educational center. A school will be more involved with sustainability, with the eco-social crisis and with social change if its philosophical pillars and its daily actions are framed by the ethical principles and the aims of Environmental Education.

The centers that follow these lines of action must be acknowledged and socially prestigious. A symbolic acknowledgement that, achieved with effort and through a system of evaluation and rigorous certification and guarantees, would involve matching the work accomplished, rekindling the motivation of the educational community, and establishing models of action consistent with environmental education and sustainability.

It is important that educational administrations offer the necessary resources and the organizational and curricular flexibility required for the optimal development of Environmental Education in schools. Without compromising on the safety of people, it is important to open flexible spaces for grouping together students, schedules, protocols for field trips, etc.

The school establishment must be a model of sustainability, its spaces must offer an image of commitment, and the management of resources must be in line with this. The consumption of water, energy or consumables, the arrangement of the playground and the entrance, the corridors and classrooms, the reception of new students, the management of waste, etc., all must respond to values of sustainability, solidarity and care. All this will make sense if this management is connected with the development of skills and personal development of the students. It is pointless

(from an educational point of view) that the management of a school should establish an environmental management system, if it is not linked to research, to the questioning of reality, to the critical construction of knowledge and to the formation of attitudes and alternative actions on the part of the students.

In this context, the definition of eco-social or sustainability competencies that students must achieve, both in primary and secondary education, cannot be postponed. It is necessary to specify and categorize these competencies: what skills to develop and what type of situations students should be able to solve or overcome.

All this must go hand in hand with learning to think, to reflect and to act, to offer students spaces of protagonism, where they can face real situations in which their contributions are taken into account; in short, to propose learning contexts that help students to empower themselves and their community, and that also help them generate and experience alternative public spheres that allow them to experience that another world is possible.

It is clear that we must continue working on traditional issues such as water, waste, recycling, school vegetable gardens or energy. However, it is important that these topics form part of broader and more complex issues that make visible the eco-social crisis, its structural causes and consequences that identify the role of the current human civilization in them, and the need for change (Gutiérrez Bastida 2018). Therefore, it is essential to work on climate change, food sovereignty, loss of biodiversity, capitalism, circular or spiral economy, ecological footprint, vulnerability, heteropatriarchy, ecological debt, ecological limits, immigration, publicity and values, crisis of care, North-South relationships, decline, etc. In order to work on these issues, it is also clear that teachers must be trained to increase their teaching competencies regarding these issues and the specificity of Environmental Education.

All these measures do not guarantee the success of the practice of Environmental Education with regards to sustainability but, at least, we can be sure that they are not just another alibi of the system so as to avoid any alterations in its course.

References

Benayas, J., Marcen, C., Alba, D., & Gutiérrez, J. M. (2017). *Educación para la Sostenibilidad en España. Reflexiones y propuestas*. Madrid: Fundación Alternativas.

Camps, V. (2011). *Civismo*. Barcelona: Editorial Proteus.

CECADESU. (2011). *Guía Escuela VerdeS: Certificación ambiental de escuelas*. SEMARNAT-SEP: México.

De León Rodríguez, A. P., & Infante Bonfiglio, J. M. (2014). Una evaluación crítica de una experiencia de Educación Ambiental para la Sustentabilidad en el nivel educativo básico en Nuevo León, México. *CPU-e, Revista de Investigación Educativa, 19*, 184–212. http://cpue.uv.mx/index.php/cpue/article/view/970.

Diario de Xalapa. (2018). *17 Ayuntamientos se han declarado libres de minería tóxica*. https://www.ocmal.org/17-ayuntamientos-se-han-declarado-libres-de-mineria-toxica/ Publicado21deagosto.

Gonzalez-Gaudiano, E. J., Meira-Cartea, P. A., & Martínez-Fernández, C. N. (2016). Liturgy and glass ceiling in the process of strengthening the sustainability in institutions of higher educa-

tion. In M. Barth, G. Michelsen, M. Rieckmann, & I. Thomas (Eds.), *Routledge handbook of higher education for sustainable development* (pp. 72–85). London/New York: Routledge.
Gutiérrez Bastida, J.M. (2014). La Confint y ESenRED: crisoles de aprendizaje hacia la ecociudadanía. *Boletín del Ceneam*, November.
Gutiérrez Bastida, J. M. (2018). *Educatio ambientalis. Invitación a la educación ecosocial en el Antropoceno*. Madrid: Bubok.
Ingurugela (2017). *Memoria del curso 2016–17*. https://www.berrigasteiz.com/site_deialdiak/aplikazioa/index-opcional-es.php?cursos_select=1&visualizacion=opcional.
Junta de Andalucía. (2015). *Dossier informativo programa "red andaluza de ecoescuelas" 2015/2016*. Sevilla: ALDEA, programa de Educación Ambiental para la comunidad educativa.
Junta de Andalucía. (2016). *ALDEA. Programa de Educación Ambiental para la comunidad educativa. Catálogo curso 2016/17*. Sevilla: Consejería de Medio Ambiente y Ordenación del Territorio y Consejería de Educación.
Ley Orgánica 1/1990, de 3 de octubre, de Ordenación General del Sistema Educativo (LOGSE). (BOE núm. 238, 4 de octubre de 1990).
Meira, P. Á. (1993). A Educación Ambiental e a reforma educativa. Posibilidades e límites dunha concepción transversal. *Revista Galega de Educación, 18*, 15–24.
Meira, P. Á. (2005). Educación Ambiental en tiempos de catástrofe: la respuesta educativa al naufragio del Prestige. *Educaçao e Pesquisa*. *Education and Research, 31*(2), 265–284.
Ministerio de Obras Públicas y Urbanismo (MOPU). (1988). *Recomendaciones para una estrategia nacional de Educación Ambiental en el sistema educativo*. Ávila, Dirección General de Medio Ambiente-Ministerio de Obras Públicas y Urbanismo.
Ministerio de Obras Públicas y Urbanismo (MOPU) (1999). *Libro blanco de la educación ambiental en España*. Madrid.
ONU. (2002). *Informe A/CONF.199/20. Informe de la Cumbre Mundial sobre Desarrollo Sostenible*. Johannesburgo (Sudáfrica), 26 de agosto a 4 de setiembre.
Perales-Palacios, F. J., Burgos-Peredo, O., & Gutiérrez-Pérez, J. (2014). El programa Ecoescuelas. Una evaluación crítica de fortalezas y debilidades. *Perfiles Educativos, 36*(145), 98–119.
Sauvé, L. (2014). Educación ambiental y ecociudadanía. Dimensiones claves de un proyecto político-pedagógico. *Revista Científica, 18*, 12–23. http://revistas.udistrital.edu.co/ojs/index.php/revcie/article/view/5558.
Sauvé, L., & Asselin, H. (2017). Educar para la ecociudadanía: contra la instrumentalización de la escuela como antesala del «mercado del trabajo». *Teoría de la Educación. Revista Interuniversitaria, 29*(1). https://doi.org/10.14201/teoredu291217244.