European SWOT Analysis on Education for Environmental Citizenship

Edited by
Andreas Ch. Hadjichambis, Pedro Reis & Demetra Paraskeva-Hadjichambi

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EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the Horizon 2020 Framework Programme of the European Union

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European Network for Environmental Citizenship
Cost Action CA16229

Cyprus Centre for Environmental Research and Education

ENEC Cost Action Report

European SWOT Analysis on Education for Environmental Citizenship

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ISBN: 978-9963-9275-6-2

Reference

This book is referenced as below:
Hadjichambis, A. Ch., Reis, P. & Paraskeva-Hadjichambi D. (Eds.). (2019). *European SWOT Analysis on Education for Environmental Citizenship*. Lisbon: Intitute of Education – University of Lisbon, Cyprus Centre for Environmental Research and Education & European Network for Environmental Citizenship – ENEC Cost Action.

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Acknowledgements

This report is based on work from Cost Action ENEC – European Network for Environmental Citizenship (CA16229) supported by COST (European Cooperation in Science and Technology).

COST (European Cooperation in Science and Technology) is a pan-European Intergovernmental Framework. Its mission is to enable break-through scientific and technological developments leading to new concepts and products and thereby contribute to strengthening Europe's research and innovation capacities.

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List of Main Abbreviations

CE: Citizenship Education
CoP: Community of Practise
DSP: Dominant Social Paradigm
EA: Environmental Attitudes
EB: Environmental Behaviour
EC: Environmental Citizenship
ECn: Environmental Citizen
EE: Environmental Education
EEC: Education for Environmental Citizenship
EfS: Education for Sustainability
ESD: Education for Sustainable Development
FCN: Frequency of Contact with Nature
NC: National Curriculum
NEP: New Environmental Paradigm Scale
PSAs: Public Service Announcements
SE: Science Education
SSIBL: Socio-Scientific Inquiry-Based Learning
STEM: Science Technology Engineering & Mathematics
TPB: Theory of Planned Behaviour
TPD: Teacher Professional Development
VBN: Values Beliefs Norms

Foreword

Environmental citizenship is crucial for the success of any environmental policy. Sustainable development, a circular economy, a low-carbon economy, and a bio-economy require an effective citizen engagement. Citizens are called upon to adopt environmental attitudes and behaviours, make green choices, increase civic participation, and to be aware of and apply their environmental rights and duties. The contemporary environmental crisis with climate change, biodiversity loss, air pollution and all other local and global environmental problems demand an education that is capable of empowering environmental citizens. Education plays a key role in shaping future environmental citizens; nobody is born environmental citizen but anybody can become so by education.

This report presents a SWOT Analysis of an integrated and holistic type of education in Europe "Education for Environmental Citizenship". The SWOT anlaysis is presented in two levels. In Part A a synthesis of the results of 157 experts from 28 European countries are presented. In Part B the reader can exlore the 23 European country reports.

It is important to clarify that this reseach regarding SWOT analysis was undertaken before any development on the concept of Education for Environmental Citizenship such as common definition and the pedagogical approach. In this fact it illustrates the experts' opinion in the different contexts through out Europe.

We hope that European stakeholders will find it useful.

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1. European Synthesis of SWOT Analysis for Education for Environmental Citizenship

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Abstract: This chapter attempts to present a European Synthesis of the views of experts in the area of education for the environment and sustainability in Europe, concerning the Strengths, Weakness, Opportunities and Threats (SWOT) of Education for Environmental Citizenship (EEC). A structured questionnaire was answered by 157 experts from 28 European countries. The participants were academics, researchers, teachers, Ministry of Education officers and NGOs. The views were processed through content analysis. EEC is perceived advantageous (Strengths) in three main dimensions: the first dimension refers to students' personal development contributing to the enhancement of critical thinking, problem solving and decision-making skills as well as in students' empowerment for civic participation, intergenerational justice and action competence in the public sphere. The second dimension includes the importance of methodologies adopted which are integrated in a holistic and comprehensive pedagogy. Inherent to Education for Environmental Citizenship is the third dimension which is being able to address several Educational Outcomes. These empower individuals to take part in the democratic processes needed to respond to the sustainability imperative. Weaknesses and areas for improvement are identified from two main directions: internal – resulting from the attributes of Education for Environmental Citizenship, and external – resulting largely from the context in which Education for Environmental Citizenship should be employed. Despite the importance of Environmental Citizenship, it is considered until now by participants to be under-explored and not clearly defined and framed in relation to other types of Education. This leads to weaknesses at a number of levels ranging from the classrooms and teacher involvement up to the Educational System. The opportunities raised by the majority of participants relate to the holistic and comprehensive approach that could be developed by Education for Environmental Citizenship. In addition, a great opportunity of EEC is considered to be the empowerment of citizens for socio-political action in the private and public sphere regarding solving socio-environmental problems. National, European and global networking potential within Education for Environmental Citizenship was recognised by experts as a crucial opportunity for achieving environmental change. The European SWOT analysis allowed also the identification of some threats for EEC,

imposing however the difficulty to separate the threats from weaknesses. The majority of respondents emphasise the limitations that are derived from the context that Education for Environmental Citizenship should be applied from top (policy level) to bottom (the individual). The results reinvigorate the need to better conceptualise Education for Environmental Citizenship. Weaknesses, obstacles and areas for improvement relating to the novelty of Education for Environmental Citizenship are advocating the need for teachers' education and motivation, the development of learning materials and best practices, as well as the mitigation of the educational system's resistance to change.

Acknowledgments: This chapter is based on work from Cost Action ENEC – European Network for Environmental Citizenship (CA16229) supported by COST (European Cooperation in Science and Technology). We would like to thank all the experts who have provided valuable input to this work.

1.1 Introduction

Environmental Citizenship is a key factor in the EU's growth strategy (Europe 2020) and its vision for Sustainable Development, a Green and Cycle economy and a Low-carbon society (EU roadmap 2050). Environmental Citizenship has been an influential concept in many different arenas such as economy, policy, philosophy, organisational management and marketing and it could be better exploited and established furthermore in education. This report examines the Strengths, Weaknesses, Opportunities and Threats of Education for Environmental Citizenship in Europe. In the first part of the report, the need for Education for Environmental Citizenship, is examined along with the methodology and results of an extensive research from more than 157 experts in 28 European countries. In the second part of the report, the country chapters for the 23 European countries and Israel emphasise the similarities, differences and special features of these case studies.

Environmental Citizenship is recognised as an important aspect in addressing global environmental problems such as climate change (Stern, 2011; Ockwell et al., 2009), whilst providing support to pro-environmental organisations and individuals, and contributing to public pressure for political action (signing petitions, writing to politicians and newspapers). Education for Environmental Citizenship is one of the emerging approaches in the educational field. In the ENEC Cost Action (http://enec-cost.eu/), Education for Environmental Citizenship has been defined for the first time (ENEC, 2018) on an International level by more than 120 experts and academics representing approximately 37 countries: "Education for Environmental Citizenship (EEC) is defined as the type of education which cultivates a coherent and adequate body of knowledge as well as the necessary skills, values, attitudes and competences that an environmental citizen should be equipped with in order to be able to act and participate in society as an agent of change in the private and public

sphere, on a local, national and global scale, through individual and collective actions, in the direction of solving contemporary environmental problems, preventing the creation of new environmental problems, in achieving sustainability as well as developing a healthy relationship with nature. Education for Environmental Citizenship (EEC) is important to empower citizens to exercise their environmental rights and duties, as well as to identify the underlying structural causes of environmental degradation and environmental problems, develop the willingness and the competences for critical and active engagement and civic participation to address those structural causes, acting individually and collectively within democratic means and taking into account the inter- and intra-generational justice (ENEC, 2018).

Education for Environmental Citizenship has important role in adopting and promoting Environmental Citizenship in our societies. However, the evaluation of the Strengths, Weaknesses, Opportunities and Threats of Education for Environmental Citizenship remains an imperative need. The (until now) under-explored potential for pro-environmental behaviour change through Environmental Citizenship should be further emphasised (Dobson, 2010) and this can contribute greatly to a more sustainable world. The review from Environmental Evidence Australia (2012) found that an agreement on what constitutes Environmental Citizenship and the most effective tools and approaches for implementing it is still in development.

This report examines the need for Education for Environmental Citizenship. It dopts an integrated methodology, of SWOT analysis, investigating the opinion of more than 157 experts from 28 European Countries. Which are the advantages of Education for Environmental Citizenship? Why is it better than other types of education (e.g., Environmental Education (EE), Education for Sustainable Development (ESD), Science Education (SE) or Citizenship Education (CE))? What are the Weaknesses, Strengths and Opportunities of Education for Environmental Citizenship? What are the Threats that Education for Environmental Citizenship faces? These are some of the crucial questions that this book answers. Educational implications of the European SWOT Analysis are highlighted. In the second part of the book, the country chapters emphasise the similarities, differences and special features of the case studies within the 23 European countries and Israel.

1.2 Methodology

1.2.1. Description of Methodology followed for EU SWOT Analysis

The methodology followed for the EU SWOT Analysis included the following phases:
Phase 1 - Country questionnaire

Phase 2 – Development of the country's SWOT Analysis Chapter
Phase 3 – European Synthesis of the results

The different phases are described in detail.

Phase 1 - Country questionnaire

A. Focus of the study:
The subject of the SWOT Analysis is 'Education for Environmental Citizenship'. In other words, our intention was to examine the state of the art of Environmental Citizenship in the four (4) levels of education (primary formal, primary non-formal, secondary formal, and secondary non-formal).

B. Questionnaire design
A questionnaire was designed for those European countries participating in the ENEC cost action to collect expert opinions on the Strengths, Weaknesses, Opportunities and Threats of Education for Environmental Citizenship. The questionnaire was designed in such a way to be generic and therefore not specific to any one country's educational system and context.

C. Research sample – experts selection
In each country at least six (6) experts were selected from the following five professional categories:

1. One researcher (academic) from the research field of EE or ESD (or from the research field of SE or CE).
2. One policy-maker from the Ministry of Education (e.g. inspector, advisor, decision-maker).
3. Two educators (teachers) from primary and secondary education who work in the field of E or ESD (or from the research field of SE or CE).
4. One decision-maker at a national NGO who works in the field of EE or ESD (or in the field of SE or CE).
5. One decision-maker at an Educational Professional Society who works in the field of EE or ESD (or in the field of SE or CE).

D. Structure of the questionnaire
The questionnaire was developed in Google Form and the following working definition of Education for Environmental Citizenship was described at the start:

Operational (Working) Definition:
Education for Environmental Citizenship is the type of education which is promoting Environmental Citizenship. According to Dobson (2010, p. 6), Environmental Citizenship is defined as "pro-environmental behaviour, in public and private,

driven by a belief in fairness of the distribution of environmental goods, participation, and co-creation of sustainability policy. It is about the active participation of citizens in moving towards sustainability".

There were sixteen (16) open questions regarding the Strengths, Opportunities, Weaknesses and Threats of Education for Environmental Citizenship. Two (2) open questions were additionally included in order to capture any differences between formal and non-formal education and the differences between primary and secondary education. Finally, five (5) closed questions were also featured using the Likert scale in order to examine the degree of similarity between Education for Environmental Citizenship and other types of education: EE, ESD, SE and CE. On the 5-scale, 1 was for 'Not similar' and 5 for 'Very similar'. The questionnaire was answered in English by each European expert.

E. Ethical issues and confidentiality

The participation of each country expert in this research project was completely voluntary and no known risks were present beyond those encountered in everyday life. The experts' responses remain confidential and anonymous. Data from this research are kept under lock and key and reported only as a collective combined total. None other than the researchers know the individual answers to the questionnaire.

Phase 2 – Development of the country's SWOT Analysis Chapter

The responses to the questionnaire were used for the development of each Country's SWOT Analysis Chapter. Specific directions were given for the sub-chapters as well as for the formatting guidelines.

Phase 3 – European Synthesis of the results

A. Data used

All data from the responses of the each country's experts were used for the creation of a database and the development of the European Synthesis. For this, data was derived and used from two (2) questions regarding Strengths and one question each for Weaknesses, Opportunities and Threats.

B. Content analysis and coding of the responses

The responses from 30 experts of different countries, selected at random, were used for the content analysis in order to develop the main categories (level 1) and subcategories (levels 2 and 3) of the coding scheme used for the full range of the responses. The overall content analysis of the responses experts was performed (Cavas, 2015; Lee et al., 2009; Lin, Lin & Tsai, 2014; Tsai & Wen, 2005). Content analysis is a widely used method in qualitative studies. The analysis approach preferred by the researchers varies according to the theoretical and substantive concern

of the researchers and the specific problem being studied (Weber, 1990). Initially, main categories and sub-categories were derived from full content analysis of the responses. Next, sub-categories were developed to distinguish between the different types of responses. The coding scheme constituted the matrix for the analysis of all the experts' responses. Where necessary a new sub-category was added.

The coding was focused on nine areas: educational outcomes, educational methodologies/approaches, students' personal development, action, context, educator issues, learning material issues, novelty of Education for Environmental Citizenship, economic and financial issues, and infrastructure. An inter-rater reliability check performed by two of the authors yielded a score of 95% agreement. All disagreements were first discussed and resolved between the two coders, and all data were coded accordingly.

C. Data analysis

Percentages for the categories and sub-categories

Based on the above coding scheme, the percentage(s) of the different categories and sub-categories were calculated based on the total number of the statements reported in each question.

D. Research sample

The research sample was constituted by 157 experts from 28 participating countries. Gender distribution was 95 female and 62 male. Out of the participants, 59 held a PhD, 83 had master's degrees, and 15 had bachelor degrees. The number of experts in each age class can be seen in Table 1.2.1.1.

Table 1.2.1.1: Number of experts in age classes

Age Class	Number of experts
20-30	15
31-40	37
41-50	53
51-60	34
>60	18

The number of experts in the five categories of profession can be seen in Table 1.2.1.2.

Table 1.2.1.2: Number of experts in categories of profession

Categories of profession	Number of experts
Decision-maker in a national NGO	18
Decision-maker in an Educational Professional Society	20
Educator – Teacher in primary education	22
Educator – Teacher in secondary education	32
Policy-maker primarily from the Ministry of Education	21
Researcher – academic	44

1.3. Results

1.3.1 Strengths of Education for Environmental Citizenship

Two questions were posed pertaining to the Advantages of Education for Environmental Citizenship (1a) and the characteristics of Education for Environmental Citizenship that do better against other relevant types of education (EE, ESD, CE and SE) (1b) constituting also its uniqueness.

Education for Environmental Citizenship is perceived to be advantageous from various perspectives: educational outcomes, educational methodologies, as well as from students' personal development. A key attribute of Education for Environmental Citizenship mentioned by the majority of experts is its contribution towards students' personal development. Education for Environmental Citizenship is considered to be a meaningful type of education, providing opportunities and conditions for young people to acquire the body of knowledge and necessary skills, values, attitudes and competences that are necessary to become an environmental citizen, and for them to be empowered and motivated to act and participate in society as an agent-of-change. According to the experts' views, Education for Environmental Citizenship also encourages learners to research, investigate and make decisions concerning complex issues. "*Education for Environmental Citizenship develops higher order cognitive skills including critical, creative and systems thinking, argumentation and problem solving skills, which may better lead to fostering a generation of an informed, critical and involved society*".

The participants' responses emphasise the importance of the pedagogical approaches/methodologies employed by Education for Environmental Citizenship, indicating a student-centered one that enables students to make daily connections and apply their learning to real life problems. These pedagogies also encourage students to participate and engage with the local context and to critically examine local issues. This is nicely put forth by one of the NGO's respondent: "*The Education for Environmental Citizenship approaches enable students to connect with their local community in a way that they see themselves as citizens of their community, while*

also providing the opportunity to critically take part in the civic dimension of a place". Education for Environmental Citizenship is also acknowledged as an education that connects to people's lives, enabling experiential learning in out-of-school settings.

Inherent to Education for Environmental Citizenship is being able to address several Educational Outcomes. These empower individuals to take part in the democratic processes needed to respond to the sustainability imperative. Experts suggest that Education for Environmental Citizenship allows people to realise those issues related to inter- and intra-generational justice, and in particular to contribute towards active engagement and civic participation. As stated by one of the academic participants:

> *Education for Environmental Citizenship provides a more compelling framework by which environmental sustainability can be greatly enhanced through civic engagement. Much of the engagement used in communities to date has been in the form of civic participation, a simple form of engagement involving individual actions, e.g., students taking part in recycling programmes.*

Some of the respondents suggest that Education for Environmental Citizenship could contribute to students' healthy relationship with nature: "*In an era where people are less connected to nature, Education for Environmental Citizenship encourages youth to leave their homes and experience their neighbourhood reality and create healthier relations with the natural and anthropogenic environment*". The participants' responses also mention the potential of Education for Environmental Citizenship in empowering people to exercise their environmental rights and duties.

In the second question (1b) concerning the characteristics of Education for Environmental Citizenship where it prevails against other relevant types of education (EE, ESD, CE and SE), the majority of responses referred to the Educational Methodologies adopted from Education for Environmental Citizenship that are integrated in a holistic and comprehensive pedagogy. A teacher from primary education mentioned that "*Education for Environmental Citizenship constitutes all other relevant four types of education together (all four in one) and that it is a real-life education with real problems and place-based education*". Also important are the statements to the action and change-oriented nature of Education for Environmental Citizenship, in comparison to the other relevant types of education: "*Within Education for Environmental Citizenship there is cognitive education as well as action, an understanding that I am part of the study and I need to stand up and be active*".

Table 1.3.1 Strengths of Education for Environmental Citizenship

		Advantages 1a (%)	Better than others 1b (%)
Educational Outcomes		**17.9**	**14.7**
Justice		**3.6**	**2.3**
	Inter-generational justice	1.8	0.8
	Intra-generational justice	1.8	1.5
Active (social) engagement and civic participation		**5.9**	**8.1**
	Improving own life conditions	1.2	2.4
	Promotes sustainability	2.8	2.5
	Real life outcomes	1.9	3.2
Healthy relationship with nature		**3.7**	**1.5**
Solving environmental problems		**1.5**	**0.6**
Preventing environmental problems		**1.3**	**0.8**
Structural causes of environmental problems		**0.6**	**0.6**
Environmental rights and duties		**1.3**	**0.8**
Educational methodologies/approaches		**27.9**	**48.9**
Real life education		**11.6**	**13.7**
	Real life problems	5.3	4.6
	Place-based problems	1.6	1.9
	Real life engagement	3.1	5.3
	Formation of policies and participation in taking decisions	1.6	1.9
Holistic approach		**6.9**	**12.7**
	All four in one	2.4	6.1
	Moral and social issues	3.3	4.9
	Science education perspective	1.2	1.7
Educational formality		**0.7**	**1.1**
	Formal education	0.1	0.0
	Non-formal education	0.6	1.1
Political dimension of education		**4.0**	**4.3**
Breaking the limits of school – collaboration with communities		**2.4**	**5.2**
Different scales (local, national, global)		**0.3**	**4.5**
Practical/experiential learning		**2.0**	**7.4**

Students' personal development		**38.8**	**23.7**
Knowledge	Conceptual understanding of environmental issues	**3.6**	**1.5**
Values		**2.5**	**2.3**
	Respect for others, diversity, environment	1.6	1.5
	Eco-centric approach	0.9	0.8
Beliefs		**0.6**	**0.4**
Attitudes		**1.3**	**1.1**
Skills		**10.2**	**7.3**
	Critical thinking	2.8	0.8
	Skills – problem solving	2.1	1.1
	Skills – participation	1.0	2.3
	Skills – decision making	1.5	1.5
	Skills – argumentation	0.8	0.6
	Skills – systems thinking	0.6	0.6
	Skills – creative thinking	0.4	0.0
	Skills – communication	0.6	0.0
	Skills – research	0.4	0.4
Competencies		**16.3**	**6.2**
	Empowerment of students	1.8	0.8
	Responsible citizen	8.3	4.6
	Environmental awareness	6.2	0.8
Pro-environmental behaviour		**4.3**	**4.9**
Actions		**5.9**	**9.1**
Individual actions		3.6	5.1
Collective actions		0.7	3.2
Public sphere		1.0	0.6
Private sphere		0.6	0.2
Context		**14.7**	**14**
Society	Local community activities for engaging citizens	**6.3**	**5.4**
Networking		**8.4**	**8.6**
	Promotion through European and global networking	5.3	4.4
	Collaboration among schools	3.1	4.2

1.3.2 Weakness of Education for Environmental Citizenship

Weaknesses and areas for improvement are identified from two main directions: **internal** – resulting from the attributes of Education for Environmental Citizenship, and **external** – resulting largely from the context in which Education for Environmental Citizenship should be employed.

The majority of responses address internally-related challenges resulting from the fact that Education for Environmental Citizenship is a novel type of education**.** Despite the importance of Environmental Citizenship, it is considered until now by participants to be under-explored and not clearly defined and framed in relation to other types of Education e.g. Education for Sustainability (EfS) and Environmental Education (EE). The lack of a clear identity, definition of core competencies and prescriptions of pedagogy can lead to uncertainty among stakeholders and doubt among researchers and teachers, revealing some weaknesses.

> *"…the necessity to strengthen the conceptualization of Education for Environmental Citizenship. The fragmented nature of the research findings and information related to Environmental Citizenship constraint their effective incorporation into good practices and policy frameworks. Therefore there is an imperative need for the establishment of Education for Environmental Citizenship, which is of outstanding importance".*

Stemming from its attributes (internal factors), according to a secondary teacher's conception, Education for Environmental Citizenship should avoid "*teaching too theoretical aspects and focus on practical aspects and experiential learning*".

Factors that may inhibit the potential contribution of Education for Environmental Citizenship are also related to externally-oriented challenges. Education for Environmental Citizenship is not officially recognised as a school subject in the educational system. The educational policy of several European countries does not encourage implementation of Education for Environmental Citizenship in formal contexts. This leads to weaknesses at a number of levels ranging from the classrooms and teacher involvement up to the Educational System.

Classrooms: The respondents emphasise the limitation of readily accessible educational materials and relate this to the low status of this subject/area. Materials that do exist are for EE or EfS, not for Education for Environmental Citizenship. Also, the school curricula do not provide resources for Education for Environmental Citizenship. According to some experts, "*the pertinence of disseminating – in a specific portal – examples of good practices in Education for Environmental Citizenship, taken from successful projects developed by schools, educational authorities and NGOs still persists*".

Teacher involvement: Another important weakness identified by some experts is the novelty of the Education for Environmental Citizenship concept and the consequent teachers' lack of knowledge in implementing this approach. Teachers may misunderstand the concept – identifying it as synonymous to other more common

concepts of EE or EfS – and begin implementing approaches that are not in line with the contextualised, student-centred, interdisciplinary, systemic, inquiry-based and action-based approach of Education for Environmental Citizenship. This is put forth by one educator: "*Teachers are not familiar with the philosophy and pedagogy of EC and therefore it is difficult for it to be incorporated into their class activities promoting aims of Education for Environmental Citizenship*". Another participant from a Ministry mentioned: "*There is a lack of motivation from teachers to be educated in new pedagogies*". This limitation would imply a coordinated strategy between the Ministries of Education and pre- and in-service teacher training institutions in order to promote the scientific and the pedagogical knowledge required for Education for Environmental Citizenship, since "*there are now available TBD programmes that could equip teachers with the necessary abilities to implement Education for Environmental Citizenship into their classes*".

Educational system: Some resistance is triggered from the educational system since people tend to refuse what is new and what they don't know. Additionally, it seems that Education for Environmental Citizenship is not a priority in educational policies and it is not included in the formal curriculum.

Table 1.3.2 Weakness of Education for Environmental Citizenship

		Responses %
Educational methodologies/approaches		**27.9**
Lack of predetermined methodology		**11.7**
	Difficult to achieve	4.0
	Difficult to assess (outcomes)	2.3
	Difficult to transform in education level	2.8
	Difficult to understand complex environmental problems	2.6
Long lasting implementation (time consuming)		**4.0**
Overlap (and competition) with EE and ESD (distinguish differences)		**6.8**
Complexity		**4.0**
Theoretical approach (too theoretical)		**1.4**
Context		**20.6**
Educational system level		**18.8**
	Resistance from the system	3.4
	Government policy (and priorities)	3.4
	Curricula (not included)	6.0
	Time in school programme (not included)	6.0
Society		**1.5**
	Society is not ready for EEC	0.9
	Citizen socio-cultural level	0.6
Educational trends and policies		**0.3**
	National and European policies on EC	0.3

Educators issues		**10.5**
	Teacher education/training/professional development	6.8
	Teacher motivation	3.7
Lack of learning material issues		**6.5**
	Lack of learning material	3.1
	Lack of best practices and examples	3.4
Novelty of EEC		**16.1**
	New - innovative concept (but unknown) for the public and educational community.	11.1
	Not a well-defined concept	5.0
Economic and financial issues		**2.3**
Need for experts and specialists		**0.9**
Need for literature		**1.1**

1.3.3 Opportunities of Education for Environmental Citizenship

The opportunities and supporting trends identified by the implementation of Education for Environmental Citizenship are mostly related to its educational strengths. The opportunities raised by the majority of participants relate to the holistic and comprehensive approach that could be developed by Education for Environmental Citizenship. This is put forth by one of the academic respondents:

> *"The pedagogy that could be developed by Education for Environmental Citizenship, combining methodologies of Education for Sustainability as well as approaches of Citizenship Education, could contribute to building students' competencies for deep civic participation necessary for realising environmental and social change. Those approaches could help current students and future citizens to redefine their relationship with nature and reiterate that environmental conservation is everybody's responsibility, all the time, based on one's life choices in minimising the ecological impact on earth*".

Such a perspective reinforces the teaching of Environmental Citizenship with a novelty not always found in other areas of the curriculum. This will degrade the walls that isolate the school from society and science and allow for the elaboration of important partnerships between school, science and society.

In addition, a great opportunity of Education for Environmental Citizenship is considered to be the empowerment of citizens for socio-political action in the private and public sphere regarding solving socio-environmental problems. This informed and active citizenship will have a big impact in the society and the environment. Some experts highlighted the fact that the quality of democracy will improve through the active participation of more citizens in decision-making processes and problem-solving initiatives, with a positive impact on environmental, technological,

social and economic policies. "*More informed and involved citizens can influence and work with policy-makers towards more socially, just and environmentally sustainable policies. Moreover, citizens' lifestyles in general may change in the direction of more democratic and environmentally sustainable behaviours*".

National, European and global networking potential within Education for Environmental Citizenship was recognised by experts as a crucial opportunity for achieving environmental change. Networking between schools, teachers, researchers, stakeholders and policy-makers could promote a multidirectional and more symmetrical form of communication regarding the aims and outcomes of Education for Environmental Citizenship. Moreover, networkers want to evolve together with their networking partners (at the same time) and this encourages them to make progress. This is a positive metaphor for the reciprocal relationship between the individual and society and can thus enhance the social responsibility required of environmentally responsible citizens.

The experts are of the opinion that new technologies can provide further opportunities to protect our planet, namely through the development of tools to support research and activism initiatives on environmental issues. Additionally, the role of technology is perceived mainly as an opportunity "enabling greater accessibility to knowledge, social networking, and providing solutions for environmental problems". Some of the experts consider that "*Education for Environmental Citizenship can play a very important role in assuring a sustainable technological development, providing more informed and active citizens who are capable of an effective action with political and economic agents*". The necessity to strike a balance between technology and outdoor activities, in relation to Education for Environmental Citizenship, is acknowledged.

1.3.4 Threats for Education for Environmental Citizenship

The European SWOT analysis allowed the identification of some threats for Education for Environmental Citizenship, imposing however the difficulty to separate the threats from weaknesses. The majority of respondents emphasise the limitations that are derived from the context that Education for Environmental Citizenship should be applied from top (policy level) to bottom (the individual).

Policy level: A main threat would be the need to convince governments, specifically the Ministries of Education, to acknowledge the importance of introducing Education for Environmental Citizenship as a distinctive subject with its own curriculum into an already overloaded school curriculum. Another threat relates to the nature of Education for Environmental Citizenship and its implementation into schools. Education for Environmental Citizenship requires an interdisciplinary, collaborative and systemic approach that is difficult to materialise in a school strongly marked by a lack of communication and coordination between teachers and school subjects. In a very compartmentalised school it is very hard to find the common

space and time needed to develop synergies among different knowledge and perspectives. According to some experts: "*Education for Environmental Citizenship implementation requires the development of less extensive curricula and a much more flexible school structure – and even a new culture – capable of adapting to new demands in terms of school aims, spaces and practices*".

The lack of ways to assess and measure the outcomes of Education for Environmental Citizenship is of crucial importance. A teacher respondent mentioned that: "*teaching - attainment targets and indicators of competence for Environmental Citizenship should be developed in order to embody the curricula with even greater efficiency*".

However, those changes need both a political will and changes in the educational system.

Societal level: Achieving behavioural change at the public/societal level is difficult. Many respondents considered the "*lack of environmental awareness of citizens*", "*the model of consumer civilization*" as well as the "*lack of environmental awareness in politicians*" as important societal threats for the implementation of Education for Environmental Citizenship. As a result, many environmental management initiatives undertaken by governments, where substantial resources are invested such as solid waste separation (at the source, i.e. by the citizen), are having limited success.

Individual level: The sporadic and superficial teaching of Education for Environmental Citizenship was considered to be a threat. As a result of its unofficial status, "*Education for Environmental Citizenship is largely dependent on bottom-up initiative based on the willingness of educators to be informed about the philosophy of Education for Environmental Citizenship and develop suitable learning interventions for their classes*". Additionally, teachers need hours of training both in pre-service and in-service in order to be equipped with the substantial abilities enabling them to act as formative agents of Education for Environmental Citizenship.

Overall, improvements will result from changes in top-down policy, namely government recognition that Education for Environmental Citizenship is an essential and obligatory education. Top-down policy will enable to respond to the cascade of threats specified above.

1.3.5 Formal and Non-Formal Education for Education for Environmental Citizenship

Experts were also asked about the differences that could exist between formal and non-formal education when implementing Education for Environmental Citizenship. According to the experts' responses, the formal educational system is viewed as the main framework for conducting Education for Environmental Citizenship. However, non-formal education is recognised as an important arena for teaching children and young people about the environment and promoting lifelong learning,

and this is acknowledged as a crucial component towards building sustainable societies and futures. Many experts (48%) express the opinion that in non-formal settings there is greater flexibility to apply Education for Environmental Citizenship since "*it is more flexible; adaptable to local circumstances and can select which issue to focus on (strength)*" and "*can rapidly seize and incorporate emerging trends and issues (opportunities)*". However "*it is much more dependent on funding from various sources and thus on financier's priorities (weakness)*". Additionally, in non-formal education the obstacle of introducing a new subject in an overloaded curriculum in a structured system by changing policies is overcome. "*Applying to formal education requires appropriate adjustments to legislation, directives and regulations related to school system*".

It is noteworthy that the majority of experts (64%) believe that a synergy between formal and non-formal education constitutes a major Strength that will lead to success of Education for Environmental Citizenship. "*Non-formal education activities are carried out by diverse social actors involved in community. Therefore, it facilitates the establishment of synergies, partnerships and support from academic institutions, NGOs and other social actors that can contribute to formal education institutions in having flexible mechanisms for integrating Education for Environmental Citizenship*".

1.3.6 Primary and Secondary Education for Education for Environmental Citizenship

Throughout the education systems of the participating countries, education is generally divided into primary and secondary education with many having an option for students to also pursue post-secondary education. The border between each type of education may vary among educational systems, however in most cases, primary education encompasses the first six to eight years of a child's education with secondary education comprising the adolescent years.

Primary and secondary education differ in terms of the curriculum as well as the age of the students, therefore most respondents identified the differences in the SWOT Analysis of incorporating Education for Environmental Citizenship into primary and secondary as being derived from the level of education. However, many of them recognised other Strengths and Opportunities of incorporating Education for Environmental Citizenship into secondary education: "*For students in secondary education it is easier to understand the complex relationships between society, economy, environment and governance. Furthermore, they are familiar with the concepts such as responsibility, duties, rights, common goods and critical thinking*". Additionally, "*secondary school education is more engaged in volunteering. Age is a limiting factor for participating in environmental activities. Older children are more enthusiastic to change things, and they like to behave more like adults, so they feel they can really change things". Furthermore, "due to their developmental*

stage, secondary school students are able to explore deeper the several environmental issues" while "*adolescents are closed future citizens*". However, an important obstacle they mentioned was related to the fact that "*secondary education has a really strict program which is discipline oriented therefore there is no much space for interdisciplinary activities which Education for Environmental Citizenship asks for*".

Some Experts mentioned that in elementary school "*there is a greater Opportunity for new generations to incorporate the values and attitudes linked to Education for Environmental Citizenship*"**.** Nevertheless, many respondents suggest that "*the two levels of education should be held in the principles of complementarity and continuity and be based on pupils' needs and potential according to their developmental stage*".

1.3.7 The educational niche of Education for Environmental Citizenship

The final results on European level shows that our 157 experts from 28 Countries believe that there is a degree of similarity between the Education for Environmental Citizenship and the 4 related types of Education which are Environmental Education (EE), Education for Sustainable Development (ESD), Science Education (SE) and Citizenship Education (CE). According to our experts the similarity 3.4 with EE, 3.8 with ESD, 2.4 similarity with SE and 3.4 similarity out of 5 with CE. Figure 1.1 presents the educational niche of Education for Environmental Citizenship.

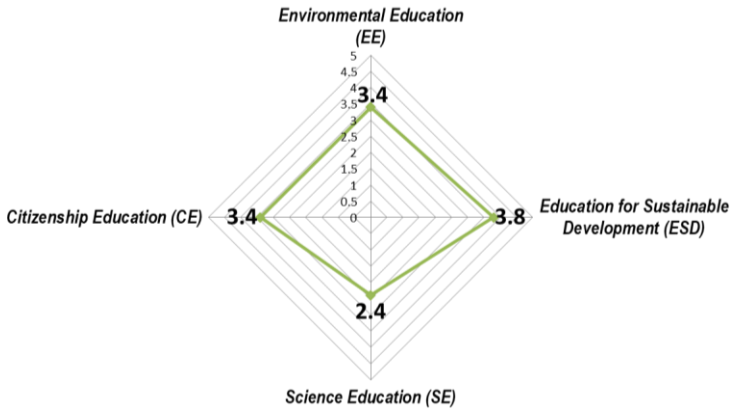

Fig. 1.1 The educational niche of Education for Environmental Citizenship

1.4 Conclusion

The results reinvigorate the need to better conceptualise Education for Environmental Citizenship. The emerged Strengths and Opportunities of that type of education could have a considerable contribution to the sustainability of societies, since today's students could become active and responsible citizens of tomorrow. Weaknesses, obstacles and areas for improvement relating to the novelty of Education for Environmental Citizenship are advocating the need for teachers' education and motivation, the development of learning materials and best practices, as well as the mitigation of the educational system's resistance to change.

However, a reframing of the educational policies at national and European levels is required in order to integrate the existing approaches of EE and ESD into a holistic and comprehensive pedagogy of Education for Environmental Citizenship and to build students' competencies for deep civic participation.

In conclusion, Education for Environmental Citizenship provides a more compelling framework to empower individuals to take part in the democratic processes needed to respond to the sustainability imperative.

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The European Network for Environmental Citizenship (ENEC) – funded as a COST Action (CA16229-Horizon 2020) – brings together more than 120 experts from 37 countries with the objective to improve the understanding, the practice and the assessment of Environmental Citizenship in Europe and the participating countries.

Environmental Citizenship has been an influential concept in many different arenas such as economy, policy, philosophy, organizational and corporation management and marketing and could be better exploited and established furthermore in the field of education as well.

This report examines the Strengths, Weaknesses, Opportunities and Threats of Education for Environmental Citizenship in Europe. In the first part of the report, the need for Education for Environmental Citizenship, is examined along with the methodology and results of an extensive research from more than 157 experts in 28 European countries and Israel. In the second part of the report, the country chapters for the 23 European countries and Israel emphasise the similarities, differences and special features of these case studies.

ISBN: 978-9963-9275-6-2

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EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY
Funded by the Horizon 2020 Framework Programme of the European Union

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