Chapter 12
Education for Environmental Citizenship Pedagogical Approach: Innovative Teaching and Learning for a Sustainable Future

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Abstract Education for Environmental Citizenship (EEC) is one of the emerging, innovative, and promising trends in the educational field and plays an important role in adopting and promoting Environmental Citizenship in our societies. The current environmental crisis is rooted in a series of environmental problems (both local and global) many of which constitute controversial and complex socioscientific issues. This chapter presents the need for the EEC pedagogical approach in times of environmental urgency, promoting individual and collective actions, in private and in public spheres and in local, national, and global scales. EEC pedagogical approach builds upon and integrates pre-existing approaches in Environmental Education and Education for Sustainability but has its own focus and characteristics. This chapter elaborates the components of the EEC pedagogical approach as an innovative and holistic tool providing the opportunity and conditions that enable learners to acquire the body of knowledge as well as the skills, values, attitudes, and pro-environmental actions necessary to become Environmental Citizens. In doing so, through EEC pedagogical approach learners are empowered and motivated to act and participate in society as agents-of-change in the direction of solving contemporary environmental problems, preventing the creation of new environmental problems, achieving sustainability, and restoring human relationships with nature. Some empirical data from the implementation of the EEC pedagogical approach are also presented, revealing that this approach can constitute a potentially fruitful avenue for the development of students' competencies for deep civic participation, contributing to environmental and social change.

Keywords Education for environmental citizenship · Environmental citizenship · Sustainability · SSI · Environmental education

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12.1 Introduction

In times of environmental urgency, with climate and environmental crises, there is a need for an education type which empowers citizens for an improved and effective environmental citizenship. Actions by citizens are central to global plans to tackle recent environmental problems such as plastic pollution, climate change, and the loss of biodiversity. Critical and active engagement and civic participation are crucial for environmental citizenship. The current environmental crisis is rooted in a series of environmental problems (both local and global) many of which constitute controversial and complex socioscientific issues. The current environmental problems are difficult to solve. They are characterized by complexity, have environmental, economic, and social components, and local, national, and global dimensions, and they need immediate action. There is an urgent need for a contemporary and innovative type of education that can contribute to solve existing environmental problems and prevent the creation of new environmental problems which could be caused by new human habits and behaviors. This type of education could be the venue to enable citizens to address the structural causes of the creation of environmental degradation (Barry, 2005), since if the structural causes are not addressed, these causes will again lead to a continuous creation of new controversial and complex socioscientific environmental problems. We need, as never before, environmental citizens who have the willingness and are able to bring changes to the environment and in society for the benefit of our planet. Agents of change are those citizens who can act as catalysts of change, who take part in decision-making and act as educators for their peers (in the case of students) and for other adults (Davis, 2009; Stuhmcke, 2012).

It could be claimed that humanity has lost its connection with nature. Most humans nowadays, grow, live, and create sometimes in entirely anthropogenic environments and do not realize their dependence on nature. They ignore the effects of their actions on nature and the environment. Sustainability is the process of maintaining change in a balanced environment. In addition, we need a development that meets the needs of current generations without compromising the ability of future generations to meet their needs. There is a need to realize the importance of sustainability and to struggle for its fulfilment taking into account environmental, social, and economic dimensions. There is a need to empower new environmental citizens to engage in critical collectives and to participate consciously and critically in ideology, collective, subjectivity, and praxis spheres (Johnson & Morris, 2010).

Education for Environmental Citizenship (EEC) is an innovative educational approach promoting pro-environmental behavior with individual and collective actions, in private and public spheres, and in local, national, and global scales, as well as engagement and civic participation. According to the European Network for Environmental Citizenship (ENEC), in which more than 134 experts from 39 countries participate (including European countries, USA, Australia and Israel), Education for Environmental Citizenship (EEC) can be defined as:

> Education for Environmental Citizenship is defined as the type of education that 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, achieving sustainability as well as developing a healthy relationship with nature. 'Education for Environmental Citizenship' is important to empower citizens to practice 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 and act individually and collectively within democratic means, taking into account the inter- and intra-generational justice. (ENEC, 2018)

The EEC definition can be integrated and illustrated in the EEC model (Fig. 12.1). In the core of the EEC Model is situated the green cycle which includes the necessary knowledge, values, attitudes, skills, competences, and behaviors that an environmental citizen should be equipped with in order to be able to act and behave as an agent of change. In addition, the other constitutional elements of the Education for Environmental Citizenship, which are Outputs (in orange arrows), actions' dimensions (individual and collective), spheres (private and public), and scales (local,

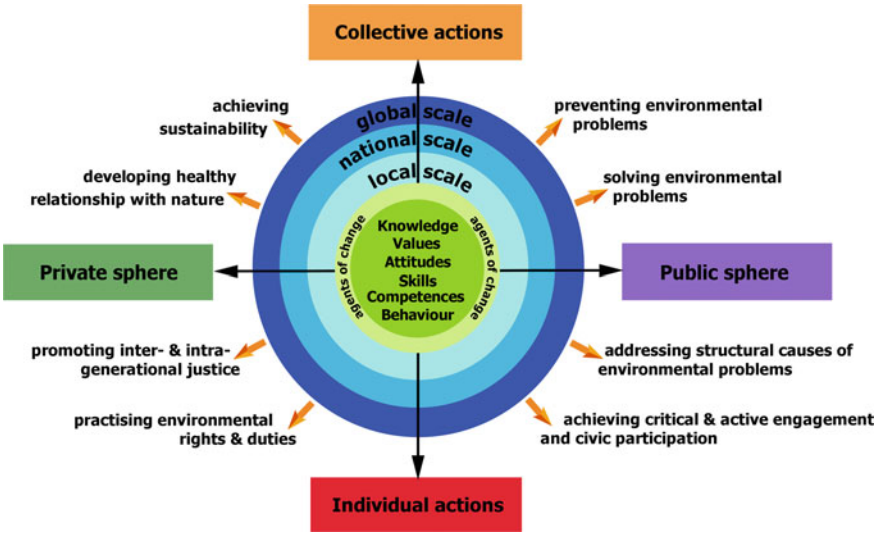

Fig. 12.1 Education for environmental citizenship model (Hadjichambis & Paraskeva-Hadjichambi, 2020a)

national, and global), form the EEC Model. It should be clarified that the exact position of each output in the EEC Model does not illustrate its relationship with actions' two dimensions, two spheres, and three scales.

The theoretical conceptualization of the EEC was deeply elaborated in previous scientific publications (e.g., Hadjichambis & Paraskeva-Hadjichambi, 2020a) and interested readers could trace back to these works for a thorough theoretical background.

12.2 EEC Builds upon and Integrates the Pre-Existing Approaches

12.2.1 Pedagogical Landscape of EEC

EEC is the type of education that promotes environmental Citizenship. It is considered essential to determine the pedagogical landscape in which EEC is placed. Some of the existing pedagogical theories and approaches are important for EEC because each of them contributes to some extent to its overall scope and goals. The following pedagogical theories and approaches form the pedagogical landscape of EEC (Fig. 12.2): Place-based learning; Problem-based learning; Civic ecology education; Pedagogy for eco-justice; Action competence learning; Community service learning; Participatory action research; Socio-scientific Inquiry-based Learning. The referred pedagogical theories and approaches overlap considerably and their overlaps are possible components of the Education for Environmental Citizenship.

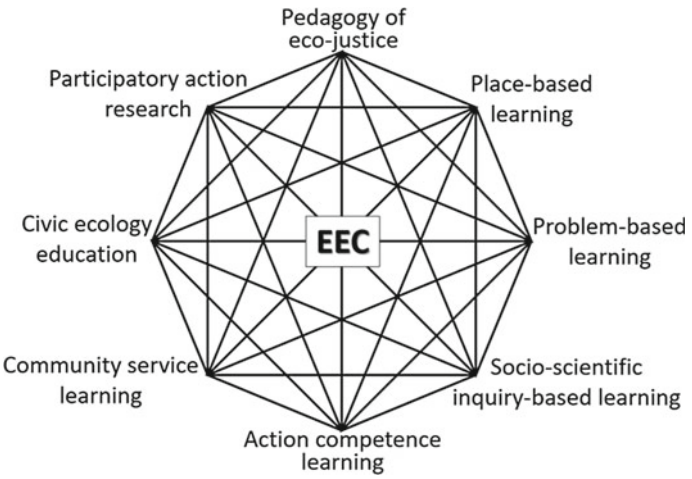

Fig. 12.2 The pedagogical landscape of education for environmental citizenship (Hadjichambis & Paraskeva-Hadjichambi, 2020a)

The pedagogical theories and approaches mentioned above can make a significant contribution to EEC, however, none of them alone can promote the whole scope, the objectives of the EEC and its outputs.

12.2.2 Educational Niche of EEC

EEC integrates and builds upon pre-existing types of education such as Environmental Education (EE), Education for Sustainable Development (ESD), Science Education (SE), and Citizenship Education (CE) (Fig. 12.3). EEC can be found where these four types of education overlap.

A European SWOT analysis examined the degree of similarity between EEC and the related four types of education which already is mentioned (Hadjichambis et al., 2019). The final results on a European level showed that the 157 experts from 28 countries believe that there is 3.4 out of 5 similarity with EE, 3.8 with ESD, 2.4 similarity with SE, and 3.4 similarity out of 5 with CE. Figure 12.4 presents the educational niche of Education for Environmental Citizenship. It is obvious that according to European experts, EEC, even though has in some degree similarities with the four related types of education, is not identical to any of them.

Overall, the SWOT Analysis of experts highlighted the need for restructuring education policies at a national and European level in order to integrate existing EU and ESD approaches into a holistic and integrated pedagogy of Education for Environmental Citizenship and to upgrade students' abilities for deep citizen participation. Education for Environmental Citizenship seems to provide a more exciting framework for empowering individuals to participate in the democratic processes required to meet the imperative of sustainability.

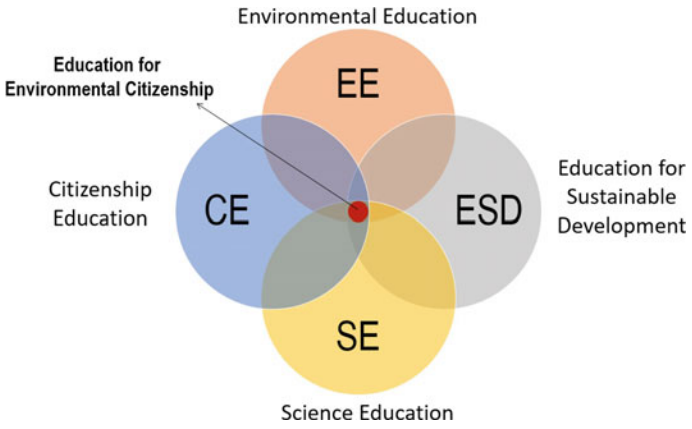

Fig. 12.3 Education for environmental citizenship and other types of education (Hadjichambis & Paraskeva-Hadjichambi, 2020a)

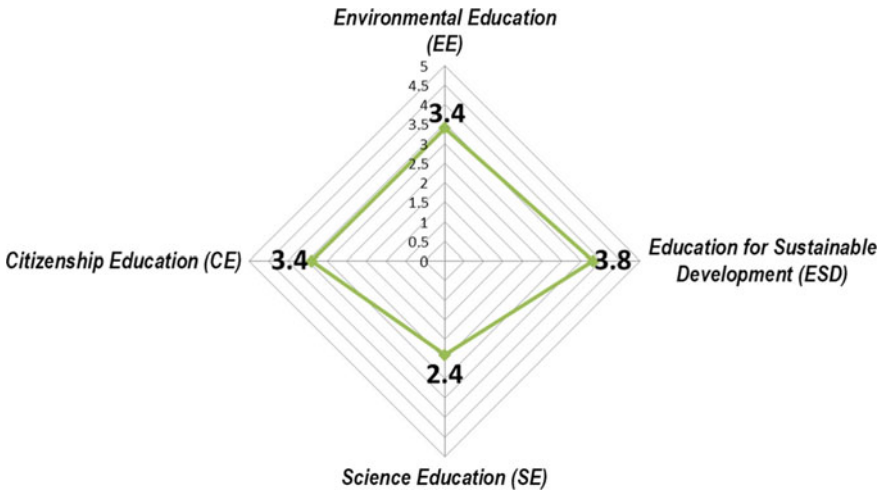

Fig. 12.4 The educational niche of education for environmental citizenship

12.3 Focus and Characteristics of EEC

12.3.1 Characteristics of EEC

Education for Environmental Citizenship has some important characteristics which identify its focus. It is obvious that EEC is a comprehensive and integrated learning type which brings together important qualities of different individual theories and approaches. It combines what can be learned in and out of a school context with real-world authentic environmental problems and tries to propose real-life contributions by examining different alternative options. Students gain integrated learning experiences approaching experiential learning which focuses on the idea that the best way to learn things is by actually having experiences. Dealing with authentic real-life environmental problems requires interaction with different stakeholders in the community, with various interests, tasks, and priorities. Therefore, students experience an inter-generational (inter-aged) learning including students and peers along with adults from the various stakeholder groups (e.g., researchers, scientists, experts, NGOs, economic factors, enterprises, and social factors). EEC also encompasses that learning integrates community service activities in the attempt to find a possible solution to the environmental problem under study. Learning in EEC complements service within the community and enables students to reflect upon and address local and national environmental problems. This cannot be done without active civic participation. EEC would like learners to be involved as actively in the learning process as possible. Civic participation and active engagement with authentic real-life socioenvironmental problems include an intentional sequence of activities or learning events

Table 12.1 Characteristics of EEC

Characteristic
Comprehensive and integrated learning
Authentic real-life learning
Experiential learning
Inter-generational (inter-aged) learning
Community service learning
Participatory learning
Critical and emancipatory learning
Local, National and Global Action learning
Inter- & Intra-generational justice learning
Students' activism learning
Change oriented learning
Transformative learning

that will help the learner achieve a specified contribution for the solution of the environmental problem under study. It also asks for a highly hierarchical type of participation including influence, participation in decision-making, and community involvement. The critical praxis implies elements of critical pedagogy and the ability to critically examine and evaluate the complexities, patterns, and policies that permeate local and global environmental problems. It also includes examining the structural causes of the specific environmental problem which involves critical and emancipatory learning. However, EEC asks to move beyond the local context, aiming also at national and global action with individual and collective actions in private and public spheres, including students' activism. For EEC it is important to examine similar environmental problems in other places, in other countries, even in other continents. It studies the similarities and differences in such cases and also examines cases of inter- and intra-generational injustices in relation to the environmental problem under study at the local, national, and global scale (Environmental Justice Pedagogy). EEC, therefore, is aiming at environmental and social change and consequently, is not only an action-oriented education but a change-oriented education attempting an environmental and social transformation for a neutral, green, and just transition as a transformative learning. Table 12.1 shows the main characteristics of EEC.

12.3.2 Notions of EEC

It is important to mention that EEC includes the Global notion, the Responsibility notion, the Participative notion, the Democratic notion and the Co-creation notion. Regarding the Global notion, as already mentioned above, EEC includes individual and collective actions at a local, national, and global level and therefore

the global dimension of this type of education is strong and clear. With this approach it prepares the culture of 'citizens of the world' who care about both the local level and the national and global level. In this frame, the EEC embraces the dimensions of Global citizenship education as well as cosmopolitanism. As far as the notion of responsibility, we recall the clear reference of the EEC definition for '…responsible pro-environmental behavior'. This can be matched to the personal behavior of a citizen, where citizens should be honest, responsible, and law-abiding members of the community. In addition, the inclusion of inter- and intra-generational justice and the practice of environmental rights and duties entail in addition the second dimension of Young's (2006) two-tiered model of Responsibility. The Participative notion is also crucial, since critical and active engagement and civic participation to address structural causes are included in the definition of the EEC. These references clearly connect to critical pedagogy (Freire, 1987) and transformative education (Mezirow, 1978). The connection with civic participation and the highly hierarchical types of participation is also clear (see Arnstein's ladder of participation, Arnstein, 1969). Of course, a collective participation is included. All of these can be considered as the participative notion of Education for Environmental Citizenship. Regarding the Democratic notion, the ENEC definitions state that environmental citizens should address the structural causes of environmental problems through democratic means. This reference is again very important because it refers to the democratic citizen, to democratic education and clearly to the democratic notion of EEC. Finally, the Co-creation notion has substantial positioning in the EEC pedagogical approach (Hadjichambis & Paraskeva-Hadjichambi, 2020a) taking into account that it is clearly stated that it is important to search for cases of inter- and intra-injustice. In addition, the decision-making on alternative solutions, the inclusion of collective design and ownership refer to the co-creation notion of Environmental Citizenship.

12.3.3 EEC Competences

Based on the reasoning that has been developed so far and based on the EEC Model, it is obvious that in order for the EEC outputs to be achieved, a number of competences are necessary, which have been mentioned scattered throughout the chapter. It is of paramount importance for environmental citizens to have the necessary competences to act individually and collectively as agents for environmental and social change. In addition, competences related to the critical and active engagement and civic participation of citizens are necessary in order for them to be able to act effectively in civil society through different critical socio-political actions. It is also essential that environmental citizens have the competences to plan, consider alternatives, implement, and evaluate individual and collective actions, both at individual and collective dimensions, and on local, national, and global scales to achieve EEC outputs. Furthermore, environmental citizens need to have the competencies

to address environmental transformative justice issues including intra- and intergenerational justice and injustice. These competences relate to addressing unsustainability and the structural causes of environmental problems within democratic means. Competences related to environmental problem solving and preventing as well as restoring environmental degradation are also very important. Social skills (e.g., collaboration, communication, negotiating, and resolving conflicts) are also important. In addition, argumentation and decision-making skills, critical thinking, systems thinking, scientific or evidence-based thinking, and creative and empathic thinking (e.g., Berkowitz et al., 2005; Mintzes et al., 1998; Schauble, 1996; Schusler et al., 2009) are needed. Therefore, integrated skills with a coherent body of knowledge and appropriate attitudes should be interwoven for an effective environmental citizen.

12.4 A Comprehensive and Holistic Approach for Education for Environmental Citizenship, the EEC Pedagogical Approach

At this point, it is worth briefly presenting a pedagogical approach that can promote Education for Environmental Citizenship. The proposed pedagogical approach includes all those elements that are necessary to achieve the outcomes of the EEC Model. Usually, it all starts with a local or a global environmental problem. This problem should be highlighted by the students themselves in order to be motivated to explore it, find solutions, and take an active role to solve it. It can also be a problem faced by the community in which the students' school is located or where they live and believe that they can act as environmental citizens to help solve it. A starting point, however, could be one global environmental problem which may have an impact on their community (such as climate change) and thus make students feel the need to contribute as agents of change, and also to give them the opportunity to expand their actions through networking locally or globally.

This Education for Environmental Citizenship Pedagogical Approach can be implemented through six distinct stages: Inquiry, Action Planning, Critical and Active Citizen Participation and Engagement, Networking & Sharing in Scales (local, national, global), Sustain Environmental and Social Change, and finally Evaluation & Reflection (Fig. 12.5). The entry point in the implementation of the pedagogical approach can be any of the six stages depending on what suits the issue under investigation. Therefore, the six stages are not proposed to be implemented in a linear sequence. Also, at each stage some steps are suggested that support the implementation of each stage. Although it is not necessary to implement all steps, it is important to include some actions that fall into each of the six proposed stages, as each stage promotes different aspects of environmental citizenship. The combination of the activities at the various stages, as described below, could fulfil the aims of this pedagogical approach to foster environmental Citizenship.

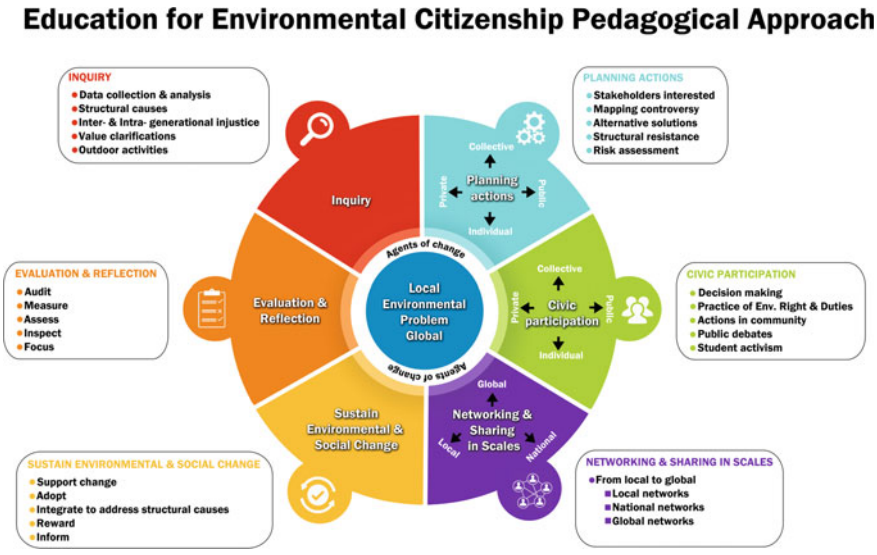

Fig. 12.5 The EEC pedagogical approach (Hadjichambis & Paraskeva-Hadjichambi, 2020a)

The **Inquiry** stage includes five steps: Data collection and analysis, Structural causes, Inter- & Intra-generational injustice, Value clarification, and Place-based activities. At this stage, students are asked to collect data and proceed with their analysis, so that they can understand the different dimensions of the problem. Frequently, the collection of scientific data could be the starting point for students in order to develop and support their argumentation toward a problem solution. At this stage, students collect and analyze data regarding an environmental problem. They are given the opportunity to examine the structural causes of the environmental problem for example, and may identify behind the problem ineffective environmental laws or ineffective procedures for nature conservation, conflicting interests for a development, or prioritization of economic development over environmental protection. Students may also have the opportunity to examine cases of intra- and inter-generational injustice in relation to the environmental problem. For example, students could detect the accumulation of wealth in certain land developers (intra-generational injustice) or the violation of environmental rights and obligations in such a way that future generations will be deprived of certain ecosystem services (inter-generational injustice). The values driving different stakeholders (e.g., developers, ecologists) relevant to the environmental problem are also important for students to understand. For example, what values are hidden behind the positions of the various stakeholders (e.g., developers, students, environmentalists)? Finally, it is important for students to visit the site in which the problem exists and take part in outdoor and place-based activities in the field.

Planning Actions is another very important stage of the Education for Environmental Citizenship Pedagogical Approach. At this stage, students should be able to

plan individual and collective actions in the private and public sector. To achieve this, it would be helpful for students to record the stakeholders' interests in the environmental problem under study. For example, in a local environmental problem, the relevant stakeholders could be developers, environmentalists, students, politicians, the government, and/or the community. As a next step, it may be useful for students to capture and map the stakeholder controversy by elaborating the arguments for or against a proposed solution. By decoding the controversy, students will realize the complexity of the environmental problem studied (e.g., Latour, 2005) and be able to design solutions that take into account the conflicting interests of the actors involved. Another step in action planning is to consider possible alternatives to the environmental problem studied, documenting the pros and cons of each alternative from a sustainability perspective. In the next step, students can explore the structural resistance that the proposed alternatives could face. Some examples of possible structural resistance that could be identified include resistance from the system, inelastic laws, interference from decision makers, or financial interests promoting growth at the expense of the environment. Finally, at this stage, students could assess the risks from the planned actions. It would be useful for students to anticipate the risks, when planning activities, so that they will be ready to handle potential risks. An example of risk could be a potential disruption and confrontation in the community with accusations on a personal and collective level.

Civic participation is a crucial stage for the implementation of the suggested pedagogical approach. The first and most important aspect of citizen participation is their active involvement in decision making (Schulz et al., 2016). In this step, students should explore the alternatives they identified in the previous stage and make their decision about the best solution (Paraskeva-Hadjichambi et al., 2015). In this step students can share their decision(s) and suggestions about the optimum alternative with scientists, environmental organizations, politicians, and other stakeholders. Another step at this stage is the exercise of environmental rights and obligations. Examples of such rights and duties may include free access to environmental data and information, the right of public participation and consultation, public access to justice, the need for an environmental impact assessment and the environmental assessment documentation strategy. The next step is to implement actions in the community, including individual and collective actions in the private and public sectors. Students could participate in or make a contribution to an environmental campaign, act as volunteers, write an article in a local newspaper, or participate in radio and television broadcasts regarding the environmental issue and the suggested solutions. Organizing or participating in a public debate could be another possible step. Students' participation in public discussions, in addition to the knowledge they will gain through argumentation, can help them develop important communication skills and active participation in the community (Gregory & Holloway, 2005; Hadjichambis et al., 2018; Owens et al., 2017). Finally, the support for students' activism is also important. Informing campaigns for their families, their peers and the general public, organizing and participating in protests or demonstrations can give students opportunities to practice different forms of civic participation that could equip students with several competences such as knowledge, skills, self-efficacy,

self-esteem, and socio-political empowerment (Baptista et al., 2018; Marques & Reis, 2017; Schusler & Krasny, 2015; Simonneaux, 2007). In addition, activism has been proven to be beneficial for environmental and social transformation (Bencze & Carter, 2011; Shor & Freire, 1987).

Networking & Sharing in Scales is another stage that is included in the EEC pedagogical approach. Students can maximize their impact by organizing local networks, involving other classmates, experts, people who could voluntarily support their actions, politicians, and even activists, who struggle for the protection of the environment. Thus, students can influence decisions in their community and be a lever of pressure on local communities to realize the importance of solving the specific environmental problem, and also highlight the importance of the precautionary principle in order to avoid creating other similar problems. Students can also shift the discussion and effort to solve this environmental problem nationwide, by developing a global network of students, scientists, volunteers, supporters, activists, politicians, and others. Connecting with national environmental NGOs is also important in this step. Although very ambitious, students can also inform the global community about the environmental problem they are studying. They can try to create global action networks by mobilizing students, scientists, volunteers, advocates, activists, and politicians in other countries in a global action. Connecting with international NGOs is extremely important. The recent global climate change movement (e.g., FFF—Fridays for Future, a global weekly student activism day) has shown that this effort is not utopian. Social media, social networks, blogs, and other recent information technology applications can have a major impact on such efforts (Gerbaudo, 2018).

Sustain Environmental & Social Change cannot be considered as a less important stage of the pedagogical approach to environmental Citizenship. Through this stage, students attempt to make complementary efforts to sustain environmental and social change. Students are given the opportunity to support and improve on previous actions. For example, they can keep discussing the issue for an extra period of time until it is resolved. The topic can be presented in the news and students may adopt new support measures and actions. Another important step at this stage is the integration of additional actions to address structural causes in other areas and at other levels. In this context, students can inform by letter other competent bodies. For example, they can send a formal letter to parliament or to the Minister for the Environment stating an environmental policy deficit. This can be a lack of existing environmental legislation, a lack of enforcement of environmental legislation, a lack of environmental structures and infrastructure, or even a lack of environmental 'culture'. In another step, students could reward those who helped with their actions (e.g., students, volunteers, supporters) by sending, for example, a thank you letter. Finally, they can inform the public about their success and disseminate successful actions, so that it is understood that such actions make sense and have the power to resolve environmental issues.

Evaluation & reflection is an integral part of EEC pedagogical approach. As in any procedure, students should evaluate the success of the several actions implemented (e.g., demonstrations, official letters). They can collaborate with their teachers to create research tools to measure different competencies (e.g., knowledge

of students before and after the intervention, attitudes of students before and after, values of stakeholders or the community, skills, and abilities). Students can also check the hidden dimensions of the procedures and steps of the applied approach. Finally, students can identify the pros and cons from the implementation of the approach and use their experience to improve the process followed by resolving an environmental issue in subsequent efforts.

In conclusion, this EEC pedagogical approach is one of the possible venues for EEC (Hadjichambis et al., 2020) and empirical studies on the implementation of the pedagogical approach can shed light on its effectiveness to foster EEC. Unpublished results from empirical studies implementing the EEC pedagogical approach indicate promising outputs in fostering EEC. However, these results are beyond the scope of this chapter.

12.5 Empirical Data from the Implementation of the EEC Pedagogical Approach

A first attempt to apply the EEC pedagogical approach was implemented in the Cyprus context regarding the development of a Casino Resort near a protected wetland. This learning intervention was designed based on the EEC pedagogical approach and was implemented with 10th-grade biology students (15–16 years old). The learning intervention was implemented as a project embedded in Biology lessons with a duration of 4 months. Students were given the opportunity to participate in several activities related to the six stages (and several steps) of the EEC pedagogical approach.

A sample of 50 students participated comprised of 29 girls (58%) and 21 boys (42%), from two classrooms. Students were of mixed academic ability according to the national educational practices. Each classroom included students whose cognitive abilities ranged from high-average to low-average, as well as some highly gifted students. The Environmental Citizenship Questionnaire (ECQ) (Hadjichambis & Paraskeva-Hadjichambi, 2020b) was employed for data collection and applied before (pre-) and after (post-) the learning intervention. The ECQ is composed of nine closed-ended questions including in total 76 items.

This tool addresses competences associated with EC (Fig. 12.6) in the cognitive (knowledge, conceptions, and skills) and affective (attitudes, values) dimensions and engagement in actions associated with EC in both private and public spheres currently and with a future-oriented perspective (likeliness of involvement in the future).

Preliminary results revealed that the EEC pedagogical approach can significantly contribute to the empowerment of students into active environmental citizens. According to the results of the pre-test the majority of the students had scarcely been involved in activities with environmental organizations or groups outside school, while at school were not given many opportunities to become familiar with ways of preventing or solving environmental problems, practicing environmental rights

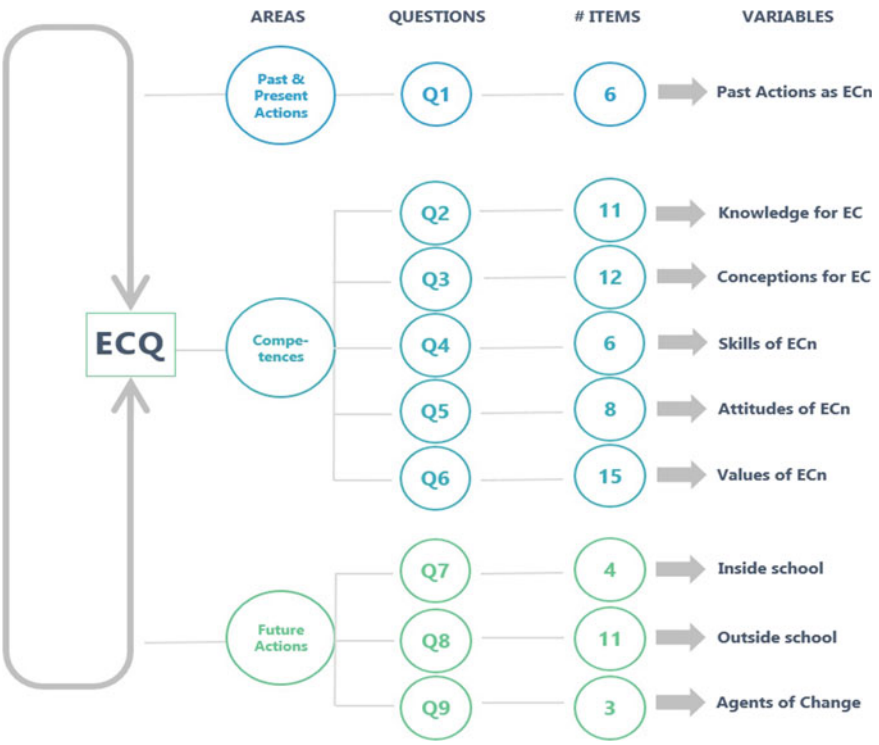

Fig. 12.6 The ECQ structure

and duties, or actively participating in society. Those parameters were considerably improved in the post-test. In addition, after their involvement in the learning intervention, the development of students' skills as environmental citizens was found to be statistically significant.

The paired t-test (for two dependent samples), revealed a statistical significant difference in all questions before and after the educational intervention. For example, the difference in mean scores (post-pre) in past/present actions as Environmental Citizens was found 0.88 (SD: 0.42, t: 14.75, $p < 0{,}001$***). In addition, the difference in mean scores (post-pre) regarding students' skills as Environmental Citizens was found 0.34 (SD: 0.42, t: 5.75, $p < 0{,}001$***).

A study from Telešienė et al. (2021) revealed that the ECQ questionnaire can be a reliable tool for measuring Environmental Citizenship. In addition, from the first implementation of this new tool in the context of higher education and by exploring the validity of this tool in different contexts, the ECQ instrument proved that it can be used in diverse educational contexts and with diverse ages to tap into the environmental citizenship of learners in the context of educational interventions (Telešienė et al., 2021). More empirical studies could shed light on the effectiveness of the EEC pedagogical approach in promoting Environmental Citizenship. Future

empirical studies should also be undertaken to investigate the impact of professional development and teacher education initiatives not only on teachers' perceptions of Environmental Citizenship but also on how these perceptions are reflected in teaching practices, within the school classrooms, in the framework of EEC (Georgiou et al., 2021).

12.6 Conclusions

Education for Environmental Citizenship could enrich curricula with an innovative, integrated, and holistic perspective combining knowledge, skills, values and beliefs, attitudes, and behaviors with individual and collective environmental actions in private and public spheres as previously described. Such a perspective removes the walls that isolate schools from society and science, and allows for the elaboration of important partnerships between schools, science, and society. This chapter strengthens the significance of the integration of Education for Environmental Citizenship in dealing with complex socio-scientific environmental problems and introduces expanded ways of thinking as it proposes the establishment of Education for Environmental Citizenship as a distinct, integrated, and holistic educational field with its own aims and primary tasks. It includes Environmental Justice Pedagogy incorporating the practice of environmental rights and duties, the promotion of inter-and intra-generational justice, and addressing cases of injustice. In addition, it includes Critical and Civic Participation Pedagogy incorporating civic participation, critical and active engagement, and addressing structural causes of environmental problems. Finally, it includes Sustainability and Nature Connectedness Pedagogy incorporating sustainability and sustainable development goals as well as the development of a healthy relationship with nature. Conclusively, the EEC pedagogical approach is a promising avenue that could fulfill the imperative need for Education for Environmental Citizenship.

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