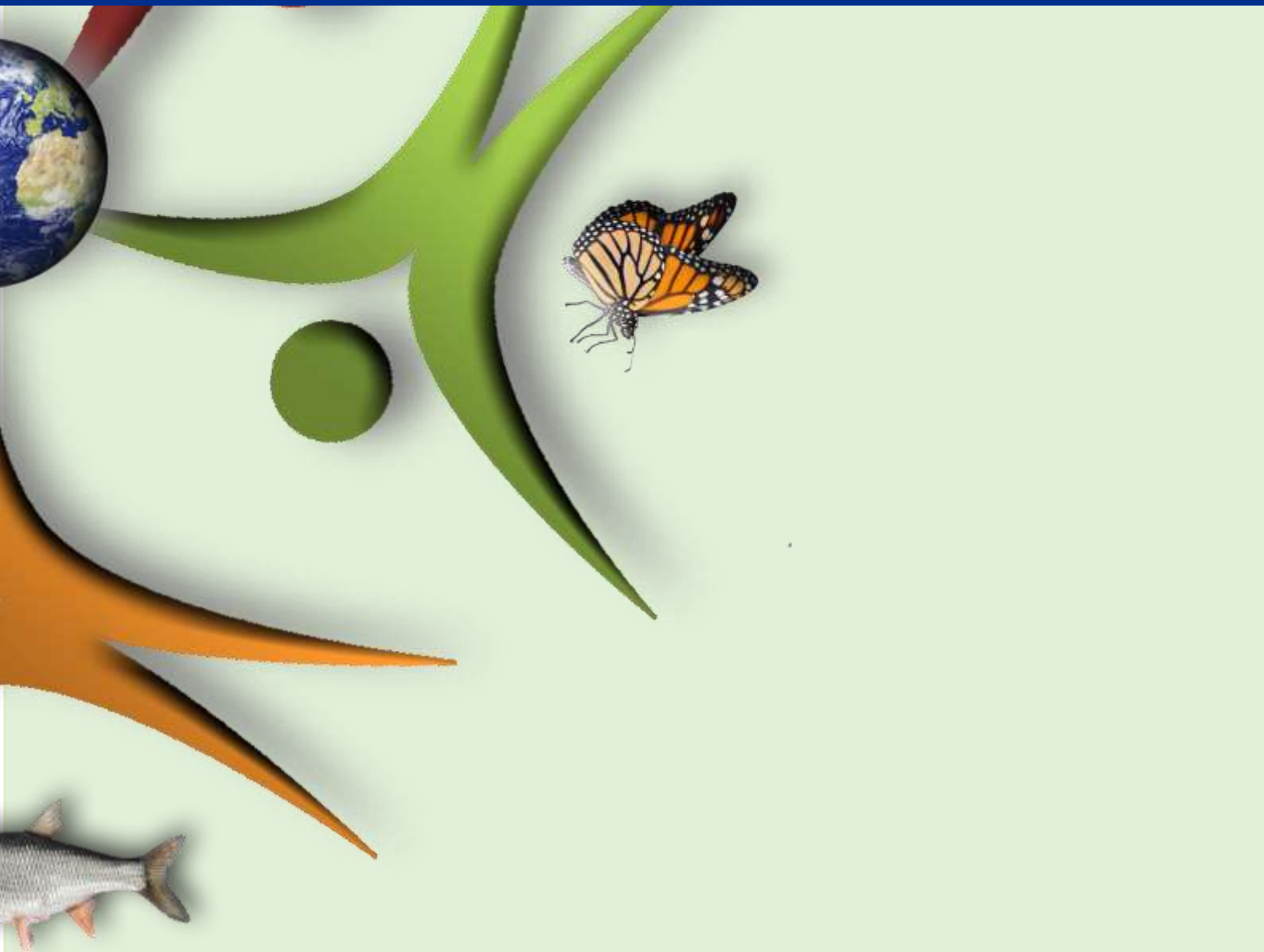


# A Proposal for a Teacher Professional Development Model on Education for Environmental Citizenship



European Network for  
Environmental Citizenship  
Cost Action CA16229



INSTITUTO DE  
EDUCAÇÃO  
—  
ULISBOA



EUROPEAN COOPERATION  
IN SCIENCE & TECHNOLOGY



Participa no Programa Europeu de Cooperação Científica e Tecnológica

# A Proposal for a Teacher Professional Development Model on Education for Environmental Citizenship

## Introduction

This text presents a proposal for a teacher professional development model on education for environmental citizenship developed within the European Network for Environmental Citizenship – ENEC (COST Action 16229)(Hadjichambis et al., 2020). This model is strongly influenced by: a) a definition of Education for Environmental Citizenship (Hadjichambis & Reis, 2020) and a Pedagogical Framework for the Education for Environmental Citizenship (Hadjichambis & Paraskeva-Hadjichambi, 2020) developed by this network; b) a systematic review of the research on effective climate change education strategies (Monroe, Plate, Oxarart, Bowers & Chaves, 2019); c) the Guidelines for Excellence regarding the Professional Development of Environmental Educators (NAACE, 2017).

Through discussions between more than 120 researchers and scholars from 37 countries, the ENEC reached an agreement regarding a definition for Education for Environmental Citizenship 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.”*  
(Hadjichambis & Reis, 2022, p. 8).

This definition includes eight main intended outputs of this type of education (in non-hierarchical order):

- Developing healthy relationships with nature.
- Practising environmental rights and duties.
- Identifying structural causes of environmental problems.

- Achieving critical and active engagement and civic participation.
- Promoting inter- and intra-generational justice.
- Solving current environmental problems.
- Preventing new environmental problems.
- Achieving sustainability.

It also implies the implementation of actions of two dimensions (individual and collective) and in two spheres (private and public).

To accomplish the goal of Education for Environmental Citizenship, teachers and educators can resort to some existing pedagogical approaches (Hadjichambis & Paraskeva-Hadjichambi, 2022):

- 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.

ENEC reached also a consensus about a specific pedagogical framework capable of fostering Education for Environmental Citizenship (Hadjichambis & Paraskeva-Hadjichambi, 2022) through the combination of the pedagogical approaches in order to achieve the intended outputs. This framework involves six stages (each one including different possible steps – not compulsory) that should be implemented according to the specific case and not in a strict linear sequence:

1. Inquiry about an environmental problem considered important by the students – a) Data collection and analysis about the environmental problem being studied; b) Gather of information about the structural causes of the environmental problem in question; c) Examination of cases of inter- and intra-generational injustice identified in the environmental problem; d) Clarification of the values which values supporting the dispositions and actions of each stakeholder's groups; and e) Implementation of outdoor place-based activities in order to develop students' engagement with the problem and sense of efficacy and relevance in addressing that problem.
2. Planning individual and collective actions to address the problem in private and

- public spheres – a) Identification of the relevant stakeholders involved in the environmental problem; b) Mapping controversy, grasping the complexity of the environmental problem being studied through the identification of the different stakeholders' arguments and inter-relationships; c) Identification and evaluation of possible alternative solutions for the environmental problem under analysis; d) Investigation of the structural resistance that a possible solution can face and the risks of its implementation.
3. Civic participation with the aim of contributing to the environmental problem's resolution – a stage that can be achieved through different possible steps: a) Decision making based on different alternative solutions and in interaction with relevant community members; b) practice of environmental rights and duties (e.g., access to data and information, right for participation and consultation, access to justice); c) Action taking in the community through individual and collective initiatives in private and public spheres; d) Organization and participation in student activism initiatives.
  4. Networking and sharing in local, national and global scales – Students can create local, national and global networks in order to inform the citizens about the environmental problem under study and mobilize them for action. For this purpose, social media and Web2.0 tools can be particularly useful.
  5. Sustain environmental and social change – a) supporting and improving previous actions, keeping the issue in the news and implementing more actions; b) valuing and rewarding the collaboration of different citizens; and c) informing the public about positive achievements.
  6. Evaluation and reflection – Students can evaluate the success of different implemented actions in order to decide which courses of action should be maintained and changed.

### **The teacher professional development model**

The exercise of Environmental Citizenship is strongly associated with the citizens' capacity to act in society as an agent of change (Hadjichambis et al., 2020; Reis, 2020), which depends on the development of the individual's willingness and competence for critical, active and democratic involvement in the prevention and resolution of environmental problems. There is a call for a well-informed and empowered citizenry to take actions appropriate to the severity of the environmental problems affecting our world (Gray et al., 2009; Hodson, 2003).

So, in order to capacitate pre and in-service teachers to act as formative agents of Environmental Citizenship, every professional development initiative should promote their ecological literacy (Effeney & Davis, 2013) and engage them in authentic environmental problem solving and action taking, allowing them to experience the different stages from the pedagogical framework of Education for Environmental Citizenship (and respective steps) and the pedagogical approaches considered relevant for this type of education. This authentic experience is crucial for their empowerment both as Environmental Citizens and Environmental Citizenship Educators. These pedagogical approaches are considered important not only for the Education for Environmental Citizenship but also for teacher education regarding climate change education (Monroe, Plate, Oxarart, Bowers & Chaves, 2019) and the professional development of environmental educators (NAAEE, 2017).

The pre and in-service teachers' professional development initiatives can be organized by universities or other teacher training institutions. However, in all cases, the initiatives must be focused on authentic environmental problem solving and action taking, inside the communities affected by those environmental problems and supported by communities of learning. What is proposed here is, simultaneously, a model for teacher professional development but also a model for community development through a collective endeavour involving communities of learning – constituted by teachers (pre and in-service) from different subjects, students, experts from universities, non-formal education providers, parents, NGO and other members of the community committed to collective problem-solving on environmental issues – where everybody learn with and from each other. It functions as a community of learning for citizens in general, where the members collaborate and support each other in the development of: a) inquiries and problem-solving processes about environmental problems they consider relevant; and b) collective actions with potential to solve those problems (i.e., nature-based solutions, actions for biodiversity/waste/energy management etc.). Community, collaboration and collective action in solidarity are fundamental elements of social change and social justice, both as ideology and practice (Grant & Agosto, 2008). This endeavor diminishes the borders between community and school, allowing for a better knowledge and collaboration based on the different members' competences.

These partnerships within communities function as living contexts for the development and exercise of environmental citizenship competences (including environmental competences, democratic citizenship competences and action competences) and the citizens' involvement in significant life experiences (Stevenson et al., 2014), with a critical impact on their knowledge, capacities, values and attitudes. These experiences can constitute important drivers of environmentally engaged citizens (Chawla, 1998), empowered as agents of change

within their communities. The social context in which people live is decisive for their development, learning through interaction with more experienced members of their communities (Rogoff 1990; Valsiner 2000; Vygotsky, 1978). Many of the life-changing decisions made by individuals and their communities are made during everyday life, rather than through participation in political structures of government. Thus, social participation in everyday contexts can be more empowering than participation in public decision-making contexts (Hart, 1992; White & Choudhury, 2010).

The collaborative support occurs in a reciprocal relationship that is beneficial and supportive both to teachers and the community in which they participate (Garmon, 2004; Grant & Agosto, 2008; Luna *et al.*, 2004; Weinstein *et al.*, 2004). Teachers can be listened to, challenged, and validated as they take risks in their classrooms (Luna *et al.*'s, 2004). They can also capitalize on parents' strengths and participate as members in social movements, associating individual efforts for change into collective actions (Cooper, 2003; Hoffman-Kipp, 2003; McLaren & Fischman, 1998; Nieto, 2000). The community-based inquiry and action provide an arena for both intragenerational and intergenerational dialogue, fostering communication, collaboration, knowledge sharing and capacity building in the development of practical solutions for community concerns on environmental problems (Wexler, 2011). This reciprocally responsive intragenerational and intergenerational communication can play a significant role in evolving (and negotiating) understandings of environmental problems and how to act in the face of them (Brown & Lock, 2018; Zurba *et al.*, 2020).

This context facilitates the development of a vision of education that is community-based and where teachers, parents and other community members are allies in the promotion of environmental citizenship. Teachers develop their teaching competences in a community that supports them in overcoming the "apprenticeship of observation" – recognized as a major obstacle to emancipatory teaching (Gillette & Schultz, 2008) – through an "apprenticeship through/for action".

The theoretical foundation of this model is sociocultural theory. Accordingly with this theory, cognitive functions appear first on a social level between individuals and later on an individual level, within the person's mind (Vygotsky, 1978). Development occurs through interaction with people and objects in the environment, when individuals appropriate meaningful tools and behaviors for their own purposes (Vygotsky, 1978). Cognitive development occurs through interaction and joint problem solving (Vygotsky, 1986).

This model is also founded on the idea that learning is a *transformation of participation* in shared sociocultural endeavors rather than a *transmission of knowledge* (Rogoff, 1994). This way, instructors facilitate experiences in contexts in which candidates begin to

appropriate the practices of the community, instead of providing information to learners functioning as passive receivers.

As a synthesis, it can be said that this model follows the five principles proposed by Robottom (1987) for a teacher education addressing the social change objectives of Environmental Education and assisting preservice teachers to become critically reflective practitioners:

- Be participatory and practice-based;
- Be enquiry-based;
- Involve ideological critique;
- Be community-based;
- Be collaborative.

## References

- Brown S. A. & Lock R. (2018). Enhancing Intergenerational Communication Around Climate Change. In W. Leal Filho, E. Manolas, A. Azul, U. Azeiteiro, H. McGhie (Eds.) *Handbook of Climate Change Communication: Vol. 3. Climate Change Management*. Cham: Springer.
- Chawla, L. (1998). Significant life experiences revisited: A review of research on sources of environmental sensitivity. *Journal of Environmental Education*, 29(3), 11-21.
- Cooper, C. W. (2003) The detrimental impact of teacher bias: lessons learned from the standpoint of African American mother. *Teacher Education Quarterly*, 101–116.
- Effeney, G., & Davis, J. (2013). Education for sustainability: A case study of pre-service primary teachers' knowledge and efficacy. *Australian Journal of Teacher Education*, 38, 32–46.
- Garmon, M.A. (2004) Changing preservice teachers' attitudes/beliefs about diversity: what are the critical factors? *Journal of Teacher Education*, 55(3), 201–213.
- Gillette, M. D., & Schultz, B. D. (2008). Do you see what I see? Teacher capacity as vision for education in a democracy. In M. Cochran-Smith, S. Feiman-Nemser, & D. J. McIntyre (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (pp. 231–237). New York: Routledge/Taylor & Francis.
- Grant, C. A., & Agosto, V. (2008). Teacher capacity and social justice in teacher education. In. M. Cochran-Smith, S. Feiman-Nemser, D. J. McIntyre, & K. E. Demers (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (pp. 175-200). New York: Routledge/Taylor & Francis and the Association of Teacher Educators.
- Gray, D., Colucci-Gray, L., & Camino, E. (Eds.). (2009). *Science, society and sustainability: Education and empowerment for an uncertain world*. London: Routledge Research.

- Hadjichambis A. Ch., & Paraskeva-Hadjichambi D. (2020). Education for environmental citizenship: the pedagogical approach. In A. Ch. Hadjichambis et al. (Eds.) *Conceptualizing environmental citizenship for 21st Century education* (pp. 237-261). Cham: Springer.
- Hadjichambis, A. Ch., Reis, P., Paraskeva-Hadjichambi, D., Čincera, J., Boeve-de Pauw, J., Gericke, N., & Knippels, M.-C. (Eds.) (2020). *Conceptualizing Environmental Citizenship for 21st Century Education*. Series "Environmental discourses in Science Education". Cham: Springer.
- Hart, R. (1992). *Children's Participation: From Tokenism to Citizenship*. Florence, Italy: International Child Development Centre of UNICEF.
- Hodson, D. (2003). Time for action: science education for an alternative future. *International Journal of Science Education*, 25(6), 645-670.
- Hoffman-Kipp, P. (2003). Model activity systems: dialogic teacher learning for social justice teaching. *Teacher Education Quarterly*, 27–40.
- Luna, C., Botelho, M.J., Fontaine, D., French, K., Iverson, K., & Matos, N. (2004). Making the road by walking the talking: critical literacy and/as professional development in a teacher inquiry group. *Teacher Education Quarterly*, pp. 67–80.
- McLaren, P.L., & Fischman, G. (1998). Reclaiming hope: teacher education and social justice in the age of globalization. *Teacher Education Quarterly*, (25)4, 125–133.
- Monroe, M. C., Plate, R. R., Oxarart, A., Bowers, A., & Chaves, W. A. (2017). Identifying effective climate change education strategies: A systematic review of the research. *Environmental Education Research*, 25(6), 791–812.
- NAAEE (North American Association for Environmental Education) (2017). *Professional Development of Environmental Educators: Guidelines for Excellence*. Washington, DC: NAAEE.
- Nieto, S. (2000). Placing equity front and center: some thoughts on transforming teacher education for a new century. *Journal of Teacher Education*, (51)3, 180–187.
- Reis, P. (2020). Environmental Citizenship & Youth Activism. In A. Ch. Hadjichambis, P. Reis, D. Paraskeva-Hadjichambi, J. Čincera, J. Boeve-de Pauw, N. Gericke & M.-C. Knippels (Eds.). *Conceptualizing Environmental Citizenship for 21st Century Education* (pp. 139-148). Series "Environmental discourses in Science Education". Cham: Springer.
- Robottom, I. (1987). Contestation and consensus in environmental education. *Curriculum Perspectives*, 7(1), 23–27.
- Rogoff, B. (1990). *Apprenticeship in Thinking: Cognitive Development in Sociocultural Activity*. New York: Oxford University Press.
- Rogoff, B. (1994). Developing understanding of the idea of communities of learners. *Mind, Culture, and Activity*, 1(4), 209–229.
- Schutz, A. (2019). *Empowerment: A Primer*. New York: Routledge.
- Stevenson, K.T., Peterson, M.N., Carrier, S.J., Strnad, R.L., Bondell, H.D., et al. (2014). Role of significant life experiences in building environmental knowledge and behavior among middle school students. *Journal of*



*Environmental Education*, 45(3), 163-177.

Valsiner, J. (2000). *Culture and Human Development*. Thousand Oaks: Sage.

Vygotsky, L.S. (1978). *Mind and Society*. Cambridge: Harvard University Press.

Vygotsky, L. S. (1986). *Thought and language* (A. Kozulin, Trans. & Eds.). Cambridge, MA: The MIT Press.

Weinstein, C.S., Tomlinson-Clark, S., & Curran, M. (2004) Toward a conception of culturally- responsive classroom management. *Journal of Teacher Education*, 55(1), 25–38.

Wexler, L. (2011). Intergenerational exchange as data collection: Introducing a community- based participatory approach to connect youth, adults and elders in a tribal community. *International Journal of Qualitative Methods*, 10(3), 248–264.

White, S., & Choudhury, S. (2010). Children's participation in Bangladesh: issues of agency and structures of violence. In: B. Percy-Smith and N. Thomas (Eds.). *A handbook of children and young people's participation: perspectives from theory and practice* (pp. 39-50). London: Routledge.

Zurba, M., Stucker, D., Mwaura, D. Burlando, C. Rastogi, A. Dhyani, S. & Koss, R. (2020). Intergenerational Dialogue, Collaboration, Learning, and Decision-Making in Global Environmental Governance: The Case of the IUCN Intergenerational Partnership for Sustainability. *Sustainability*, 12, 498.

