SELF-DIRECTED LEARNING TO IMPROVE QUALITY OF LIFE

CHAPTER 2

CLIMATOPIA

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License

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TABLE OF CONTENTS

Education for Sustainable Development

Education for Sustainable Development (ESD) is UNESCO's education sector response to the urgent and dramatic challenges the planet faces. The collective activities of human beings have altered the earth's ecosystems so that our very survival seems in danger because of changes more difficult to reverse every day. To contain global warming before it reaches catastrophic levels means addressing environmental, social and economic issues in a holistic way. UNESCO's ESD for 2030 education programme aims to bring about the personal and societal transformation that is necessary to change course.

Climate action is one of the key thematic priorities of ESD for 2030, the Education for Sustainable Development's global framework for the next 8 years. Through its programme, UNESCO has been working to make education a more central and visible part of the international response to climate change.

The ESD for 2030 roadmap sets out the urgent challenges facing the planet and underlines the implementation of the new Education for Sustainable Development: Towards Achieving the SDGs (ESD for 2030) framework, which aims to increase the contribution of education to building a more just and sustainable world.

The ESD for 2030 roadmap outlines actions in five priority action areas on policy, learning environments, building capacities of educators, youth, and local level action, stressing further ESD's key role for the successful achievement of the 17 SDGs and the great individual and societal transformation required to address the urgent sustainability challenges. It also underlines six key areas of implementation: country initiatives on ESD for 2030, ESD for 2030 Network, communication and advocacy, tracking issues and trends, mobilizing resources, and monitoring the progress.

To complement the ESD for 2030 roadmap, UNESCO has developed this ESD for 2030 toolbox. It provides an evolving set of selected resources to support the efforts of Member States and regional and global stakeholders to develop activities in the five priority action areas and activities in support of the six key areas of implementation.

Education for sustainable development for 2030 toolbox

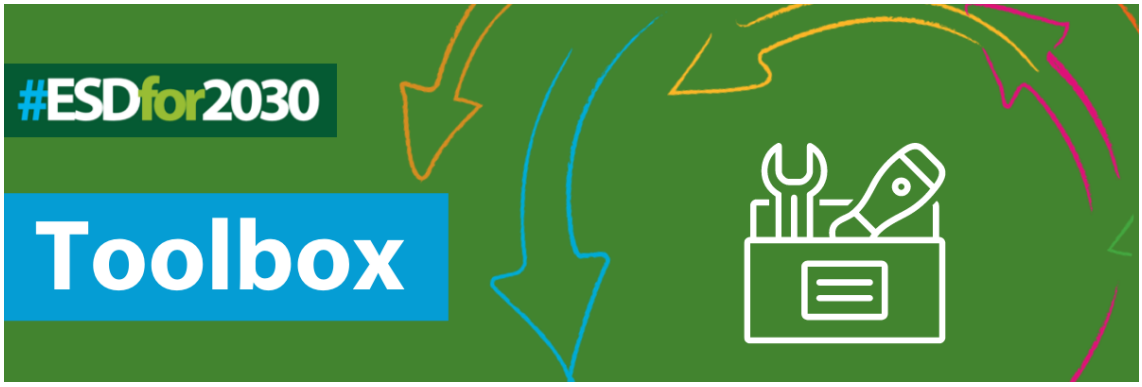


Figure 1. UNESCO. Education for sustainable development for 2030 toolbox.

Priority Action Areas

Click on the icon of the Priority Action Area you are interested in to find out more.

Figure 2. UNESCO. Priority Action Areas.

Areas of Implementation

The ESD for 2030 roadmap underlines six key areas of implementation: country initiatives on ESD for 2030, ESD for 2030 Network, communication and advocacy, tracking issues and trends, mobilizing resources, and monitoring the progress.

This toolbox provides an evolving set of selected resources to support the efforts of Member States and regional and global stakeholders to develop activities in support of the six key areas of implementation and of the five priority action areas (policy, learning environments, educators, youth, and local level).

Figure 3. UNESCO. Areas of Implementation.

Click on the icon of the Area of Implementation you are interested in to find out more.

Climate Change Education

Education is crucial to promote climate action, it helps people understand and address the impacts of the climate crisis, empowering them with the knowledge, skills, values, and attitudes needed to act as agents of change.

Climate change education is a vital part of environmental education, education for sustainable development, and eco-social competence. Closely related are citizenship, human rights and media education, and education on global and future issues.

The main goals of climate education include building a sustainable future, inspiring action, and practicing influencing skills at the social and personal levels. It is imperative not only to learn to understand climate change in-depth but also to change one's own behaviour and actions. In this context, behaviour refers to action people take to tackle climate change. In addition to active citizens, many social institutions are developing mitigation and adaptation techniques, and climate education should provide at least basic information on these agents.

The international community recognizes the importance of education and training to address climate change. The UN Framework Convention on Climate Change, the Paris Agreement, and the associated Action for Climate Empowerment (ACE) agenda call on governments to educate, empower, and engage all stakeholders and major groups on policies and actions relating to climate change.

The Education for Climate Coalition

The Education for Climate Coalition is the European participatory education community to support the changes needed for a climate-neutral society.

*"**'To make a difference' – this is what the #EducationForClimate Coalition is all about.** To make a difference in your school, in your neighbourhood, in the very region you live and to contribute actively to the green transition our societies go through."*

Commissioner Mariya Gabriel

As a flagship initiative of the European Education Area by 2025 and essential part of the European Green Deal, the Education for Climate Coalition is part of the European Union's comprehensive approach to environmental sustainability education.

As a community of practice, it enriches both the Council recommendation on environmental sustainability and the competence framework on sustainability with its participatory approach for taking action on education for climate challenges on the ground.

European Climate Pact

PROMOTING CLIMATE EDUCATION AND AWARENESS FOR ALL.

To build a climate-friendly society, we need to understand the facts, share information, and talk to each other.

The European Climate Pact will help spread knowledge about climate action that is scientifically sound and provides a basis for action. It will showcase solutions for inspiration and learning, and help networks and communities amplify their action and impact.

What will the Pact do?

- Welcome Ambassadors who engage with people in their communities and networks
- Translate science into options for everyday action
- Promote climate literacy and help integrate climate science and solutions into educational programmes
- Debunk climate myths and counter climate denial and misinformation, in line with actions to tackle disinformation and the European Democracy Action Plan
- Bring people together to share experience and ideas
- Use existing multi-stakeholder initiatives to raise awareness

The Transformative Power of Education

Fundamental changes required for a sustainable future start with individuals. ESD has to place emphasis on how each learner undertakes transformative actions for sustainability, including the importance of opportunities to expose learners to reality, and how they influence societal transformation towards a sustainable future. ESD in action is citizenship in action.

Fundamental changes required for a sustainable future start with individuals. ESD has to place emphasis on how each learner undertakes transformative actions for sustainability, including the importance of opportunities to expose learners to reality, and how they influence societal transformation towards a sustainable future (UNESCOb, 2020).

ESD IN ACTION IS CITIZENSHIP IN ACTION.

How are we going to achieve this?

An Action-oriented, Transformative Pedagogy

ESD is holistic and transformational education that addresses learning content and outcomes, pedagogy, and the learning environment. Thus, ESD does not only integrate contents such as climate change, poverty and sustainable consumption into the curriculum; it also creates interactive, learner-centred teaching and learning settings. What ESD requires is a shift from teaching to learning. It asks for an action-oriented, transformative pedagogy, which supports self-directed learning, participation and collaboration, problem-orientation, inter- and trans-disciplinarity, and the linking of formal and informal learning. Only such pedagogical approaches make possible the development of the key competencies[1] needed for promoting sustainable development (UNESCO, 2017).

[1] The development of a European sustainability competence framework is one of the policy actions set out in the European Green Deal as a catalyst to promote learning on environmental sustainability in the European Union. GreenComp identifies a set of sustainability competences to feed into education programmes to help learners develop knowledge, skills and attitudes that

Transformative learning can best be defined by its aims and principles, rather than by any concrete teaching or learning strategy. It aims at empowering learners to question and change the ways they see and think about the world in order to deepen their understanding of it (Slavich and Zimbardo, 2012; Mezirow, 2000). The educator is a facilitator who empowers and challenges learners to alter their worldviews. The related concept of transgressive learning (Lotz-Sisitka et al., 2015) goes one step further: It underlines that learning in ESD has to overcome the status quo and prepare the learner for disruptive thinking and the **co-creation of new knowledge** (UNESCO, 2017).

The Concept of *Self* in Self-Directed Learning

Note: The following italicized text, including Figures 4 and 5, is extracted directly from Boucouvalas (2009 and 1988), with permission.

Probably the best definition of self-directed learning (SDL) is that provided by M. Knowles (1975, p. 18, as cited in Boucouvalas, 2009, p. 2):

"In its broadest meaning, SDL describes a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes".

According to M. Boucouvalas (2009, p. 2) *"self-direction at that time, at least à la Knowles, was not just an educational process to be catalyzed; it was also, for learners, a way of thinking about and being with learning. There were both epistemological and ontological aspects to the process. It was less about independence per se and more about taking responsibility for one's learning, thinking about and selecting both*

promote ways to think, plan and act with empathy, responsibility, and care for our planet and for public health.
This work began with a literature review and drew on several consultations with experts and stakeholders working in the field of sustainability education and lifelong learning. The results presented in this report form a framework for learning for environmental sustainability that can be applied in any learning context. The report shares working definitions of sustainability and learning for environmental sustainability that forms the basis for the framework to build consensus and bridge the gap between experts and other stakeholders.
GreenComp comprises four interrelated competence areas: 'embodying sustainability values', 'embracing complexity in sustainability', 'envisioning sustainable futures', and 'acting for sustainability'. Each area comprises three competences that are interlinked and equally important. GreenComp is designed to be a non-prescriptive reference for learning schemes fostering sustainability as a competence (Bianchi et al., 2022).

material and human resources to aid one's learning. It was about a commitment to knowing oneself as a learner."

What energizes us?
What environments help us flourish?
What makes us wilt?

In addition, "*an idea that could be easily missed in Knowles' 1975 book entitled Self-Directed Learning: A Guide for Teachers and Learners, because it only appeared in a few sentences*," is that *"one could not always control the external environment, but could learn to adapt and adjust when needed. With a centered understanding of oneself as a learner, one could even enter an other-directed or controlled learning situation without losing one's self-directedness* (p.2)*."* Boucouvalas has published several articles on *"how self-direction is indeed relevant to other-directed environments (*Boucouvalas & Pearse, 1982, 1985*).*

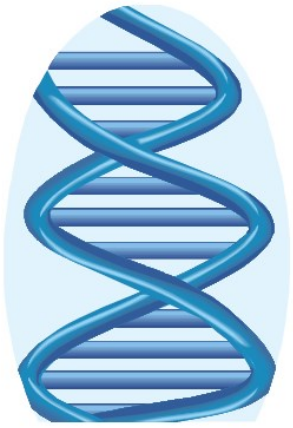
Moreover,"***learning is* [often] *not exclusively for individual benefit***. *It is also geared to improving the working of groups, organizations, and ultimately for any needed social change in society-at-large.* ***Maintaining one's center while also working for collective/transformative action is integral* (2009, p. 2).***"*

Boucouvalas (2009, pp. 3-4) embarked upon an analysis of the literature on self-directed learning beginning in the 1980s, and her findings revealed *"a lack of attention in general to a discussion of the conceptualization or meaning of self, and an almost exclusive attention, both explicit and implicit, to* ***autonomy****. The development of an independent, separate self-sense was indeed important and often considered the hallmark of maturation, at least in western literature. Autonomy is only a partial rendition of selfhood, however. Embedded deep in a small footnote of Maslow's (1968) Toward a Psychology of Being is the concept of* ***homonomy****, coined by Hungarian Andras Angyal (1941),* ***referring to the meaning derived in life by being and feeling part of a greater whole."*** Boucouvalas *(1988)* introduced and discussed the honomonmous (connected) Self as "the complementary dimension to

selfhood," suggesting that *"a conceptualization of s/Self*[2] *that includes both autonomous and homonomous dimensions could serve as a more robust construct for research and practice on an international basis."*

***"Homonomy** as a developmental trajectory complements autonomy in life and living, remembering that while some cultural environments emphasize development and nurturance of one trajectory more than the other, the challenge from a global perspective is balance."*

As illustrated in Figure 4, *employing the DNA double helix as a visual image,* [Boucouvalas is] … *conceptualizing autonomy and homonomy, although oversimplified somewhat, as two complementary trajectories of development that very often become inextricably intertwined."*



Autonomy Homonomy

Figure 4. Autonomy and homonomy depicted as two complementary intertwining developmental trajectories (Image in public domain).

"We have the ability, as demonstrated over the years, to develop an autonomous aspect of selfhood that enables us to:

- *take initiative and responsibility for learning,*
- *understand ourselves as learners, and*
- *maintain our self-direction, even when in other-directed environments;*

however, as individuals we are also embedded in relationships, groups, communities and cultures, nations, and society-at-large. As well, beyond

[2] *self* with a lower case *s* refers to one's separate individual self, while *Self* with a capital *S* refers to the expanded connected sense of Self represented by homonomy.

these affiliations, ***the entire human species shares a global identity as citizens of planet earth****."*

Figure 5 depicts ***an open system of worlds within worlds, contextualizing an individual as part of greater wholes, each of which addresses part of one's homonomous identity****. Keeping mindful that the pull toward autonomy is motivated by achievement and self-governance, the pull toward homonomy draws meaning from being part of meaningful wholes and in harmony with superindividual units with which one identifies, such as those depicted in Figure 5: relationships, groups (professional, social, ethnic, etc.), organizations, communities, cultures, and nations, and of course ultimately as a member of the human species and planet earth. Participating in (and especially being motivated by) something greater than the individual self characterizes homonomy. One's Self-identity (with a capital S) emerges from such constellations."*

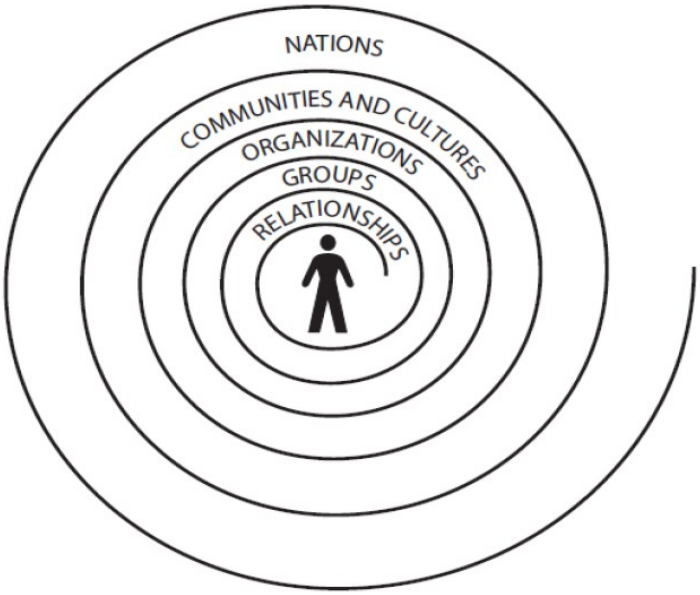


Figure 5. The individual embedded in contexts that contribute to homonomous identification and development.

Boucouvalas' theory focuses on adult education, but Pyrini (2013) applies the theory and adapts Boucouvalas' image to the context of elementary school students, as depicted in Figure 6.

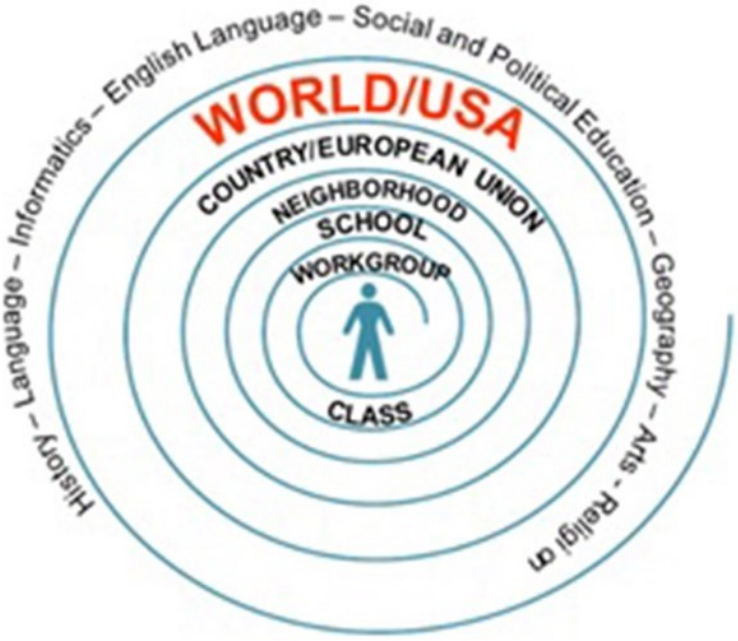


Figure 6. School students are embedded in worlds within worlds (Pyrini, 2013).

Boucouvalas (1999) argues that *"any of the collectives in Figure 5 that afford homonomous identity to the individual can become autonomous in nature; that is, develop an autonomous identity, for better or worse. So the concept of autonomy can apply not just to individuals but also to collectives. An individual engagement of one's homonomous dimension by identification with an ethnic group, for example, can in turn manifest as an autonomous identity for that group. In a beneficial sense, such groups can effect helpful social change. If, however, the group does not, in turn, engage its homonomous identification with an even greater whole, very often centrisms arise, such as ethnocentrism and nationalism. As we have seen around the world, such a situation can lead to deleterious results such as ethnic cleansing (or purging of others with whom one does not identity or whom one considers an aversive other).* ***The more we can recognize, and preferably identify with, the greater whole of which our collective identities are part, our sense of objectionable other increasingly diminishes. This point is very important both to heed and understand."***

From Theory to Pedagogical Practice of the Climatopia Project

The Climatopia project aims at developing educational materials and teaching methods on ESD to be included in school settings as well as initial and ongoing teacher training settings and will also be communicated and discussed widely in the communities.

The objectives of the project are consistent with the five fundamental types of learning to provide quality education and foster sustainable human development (Delors et al., 1996), specifically:

- develop the pupils' scientific knowledge and green skills on climate change using comics and a - serious game (Learning to Know);
- effectively apply the knowledge acquired in the context of a simulation, decision-making game (Learning to Do);
- provide 'designed experiences' where players can learn through doing and being, rather than absorbing information from readings and traditional lecture formats (Learning to Be);
- design highly engaging learning experiences that allow players to build empathy by taking on various roles and perspectives (Learning to Live Together);
- envision oneself in the future and seeing consequences of actions at different points in time.

Learners will engage in action through the proposed activities of the "Climatopia" educational programme and reflect on their experiences in terms of the intended learning process and personal development.

Following the Whole-School Approach, the adults involved in the project (teachers, school principals and administrators, staff, parents) are also learners in the proposed learning processes and act as facilitators.

The pupils enter the world of Climatopia with their imagination and the story developed in the context of the project. In Climatopia Land, pupils enter an open system of worlds within worlds, contextualizing them as part of greater wholes, each of which addresses part of their own homonomous identities.

Pupils find themselves in different environments: "The Auditorium and the Laboratory of their School", "The Greenhouse Gas Measuring Station", "At the South Pole", in the land of Climatopia "In Houses", "At

Schools", "At a Farm", "At the meeting of the City Council", "At the Meeting of the Middle Epirus Countries", "At the Climatopian Conference of 20"; in different challenging conditions: "A fiery Trap", "At the Mercy of a Storm"; even in different times as they "travel" to the past and the future.

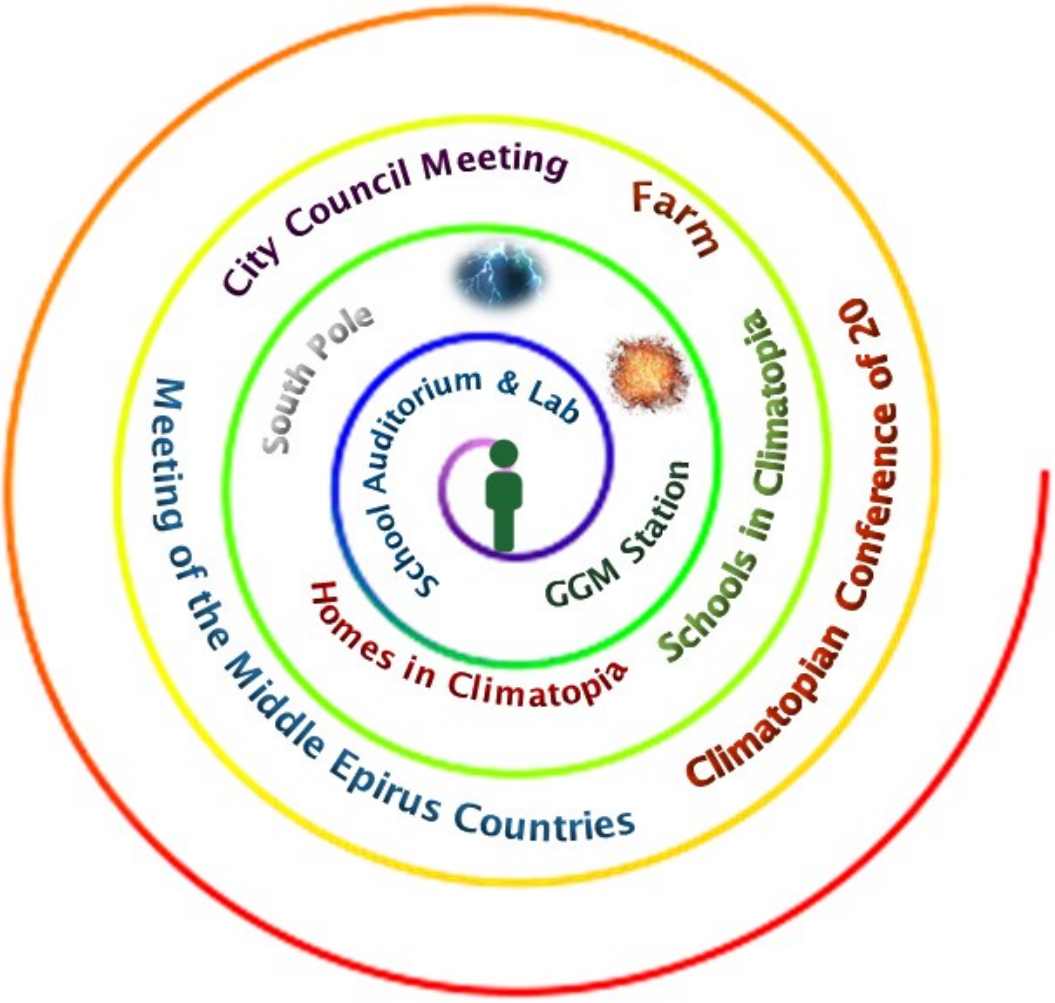


Figure 7. The worlds within worlds system of the Climatopia project. (Pyrini, 2021).

1st Phase of the Educational Programme

The theoretical psychological and pedagogical framework developed aims to:

- define the line between responsible education and undue alarmism;
- develop strategies to raise a generation to look toward the future with hope as opposed to voices all around them swirling messages of apparent hopelessness;
- develop a methodological approach to prepare today's children for a world defined by environmental trauma without inflicting more trauma to them;
- set the psychological basis for becoming creators of educational material relevant to climate change rather than consumers.

Learning to Know Pillar

Chapter 3 develops activities that students can carry out with the support of an adult, either a teacher at school or a parent at home.

The first part of the activities deals with the Choice Theory, the five basic needs and the strategies to fulfil them.

The second part of the activities concerns the students' self-identification as autonomous and homonomous learners by setting for themselves short-term (closer to the center of the spiral) and long-term (further away from the center of the spiral) goals and planning the connections they can make in their environment that will serve to achieve the goals by prioritizing their basic needs.

The third part is about STEM teaching. With the story of "Climatopia" as a vehicle, through the questions pupils are asked to answer and the hands-on activities and experiments they perform, they are guided to acquire scientific knowledge about climate change.

Learning to Do and Learning to Live Together Pillars

The next stage of the realization of the educational programme incorporates art. Pupils are asked to co-create the continuation of the comic stories created by the project team.

How will they envision the future of the comic book heroes? What goals will they set for them? What strategies will they use to achieve them? What alliances will they seek? What will be the driving forces for

achieving their goals and what will be the inhibiting ones? How will they address the inhibiting factors? How will they deal with their internal rivalries and conflicts within the group?

2nd Phase of the Educational Programme

In the second phase of the educational programme, pupils are asked to do something they love to do: play an online game.

Learning to Be, Learning to Live Together, and Learning to Transform Oneself and Society Pillars

The Climatopia Game supports:

- *experiential learning,* providing pupils with a choice of environments to explore, learn and develop creative solutions;
- *STEM,* cultivating pupils' skills through the content of the game;
- *problem solving,* requiring the scientific knowledge about climate change and mastering skills such as critical thinking, strategy, and resilience;
- *informed decision-making,* providing pupils with feedback on the consequences of their decisions;
- *inclusivity,* giving pupils the opportunity to be who they want to be, supporting marginalised, high-risk pupils to belong to the group they choose by going beyond stereotypes and socio-economic and other boundaries.

Despite the many benefits outlined above, gaming does have downsides and therefore adults who supervise pupils should limit the amount of time they play to half an hour to an hour a day (Council on Communications and Media, 2013).

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CLIMATOPIA

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