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# EMPOWERING YOUNG ECO-CITIZENS: A PARTICIPATORY SUSTAINABILITY ACTION PLAN IN PRIMARY EDUCATION

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**Abstract:**
This article presents a participatory sustainability action plan implemented in two Greek primary schools through the European eTwinning project entitled "Plastics plastics…everywhere!". Aiming to empower students as young eco-citizens, the project engaged 5th and 6th grade pupils in both schools in a series of hands-on, cross-curricular activities focused on environmental responsibility, plastic pollution, and climate action. Students investigated everyday waste habits, explored EU environmental policies and created collaborative outputs such as posters, digital stories, a newspaper, and a board game. Through experiential learning and tools like Padlet, Canva, and Twinspace, they cultivated digital literacy, critical thinking, and civic engagement. The project culminated in a community awareness campaign and a school-wide sustainability event at each participating school. This study highlights the potential of environmental education to promote student agency and ecological consciousness from an early age. It demonstrates how participatory methodologies and international collaboration can transform sustainability from an abstract concept into a lived experience, shaping students' values, skills, and attitudes as active global citizens.

**Keywords:** sustainability education, environmental citizenship, primary education, plastic pollution, eTwinning collaboration

## 1. Introduction

In recent years, sustainability education has become a central pillar of 21st-century learning, as global environmental challenges such as plastic pollution, climate change, and biodiversity loss intensify. Schools are increasingly seen not only as institutions of

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knowledge but also as active agents of ecological and civic transformation. In this context, empowering students to become conscious and active eco-citizens from an early age is both an educational necessity and a democratic right.

The European Green Deal and the Sustainable Development Goals (SDGs) call for concrete, cross-sectoral educational initiatives that promote awareness, critical thinking, and action on environmental issues. In primary education, however, engaging students in authentic environmental participation requires a shift from traditional didactic approaches to more experiential, inquiry-based, and collaborative methodologies.

This article presents a participatory action plan implemented in two Greek primary schools within the framework of the European eTwinning project entitled "Plastics plastics…everywhere!". The project involved pupils from 5th and 6th grade in a series of cross-curricular, hands-on, and community-focused activities designed to foster environmental responsibility, creativity, and student agency. Through digital tools such as Twinspace, Padlet, and Canva, students explored the impact of plastic waste, studied EU environmental policies, created original educational materials, and led awareness campaigns for their school and local community.

The aim of this article is to highlight how participatory sustainability education in primary schools can cultivate students' environmental consciousness, support interdisciplinary learning, and promote the development of active, responsible young citizens who care for their planet and community.

## 2. Literature Review

Environmental education has evolved in recent decades into a more comprehensive and transformative framework known as Education for Sustainable Development (ESD). ESD aims not only to increase environmental knowledge but also to equip learners with the skills, values, and dispositions needed to contribute to a sustainable future (UNESCO, 2017). At the heart of this approach lies the concept of environmental citizenship, which emphasizes active participation in local and global environmental challenges (Huckle & Wals, 2015).

In primary education, the implementation of ESD requires a shift from teacher-centered to learner-centered models that emphasize inquiry, agency, and participation. Constructivist and social interdependence theories of learning (Dillenbourg, 1999; Johnson & Johnson, 2009) provide strong pedagogical foundations for this transition. When students engage in meaningful, real-world tasks and are encouraged to co-construct knowledge, they not only deepen their understanding but also develop critical thinking, empathy, and civic awareness.

Project-based learning has been identified as a powerful methodology within this framework. By involving students in long-term, interdisciplinary projects that address real problems, project-based learning supports the development of key competences for sustainability, including systems thinking, values clarification, and collaborative problem-solving (Brundiers, Wiek, & Redman, 2010).

Digital technologies offer new affordances for sustainability education. Platforms such as Padlet, Canva, and especially eTwinning's Twinspace allow students to collaborate, create, and communicate across borders in real time, developing both their digital literacy and their global awareness (Robin, 2008; Redecker, 2017). eTwinning, in particular, fosters intercultural communication and a sense of European identity through joint learning projects (European Commission, 2020).

Finally, recent studies highlight that embedding sustainability within school culture—rather than treating it as an extracurricular activity—can contribute to long-lasting attitudinal change and community transformation (Burns, 2016; Mannion, Biesta, Priestley, & Ross, 2011).

## 3. Project Context and Objectives

The action plan presented in this study was carried out during the 2024–2025 school year in two public primary schools in Livadia, Greece, within the framework of the European eTwinning project entitled "Plastics plastics…everywhere!". The project engaged pupils from the 5th and 6th grades (ages 10–12), with the active support of their teachers and the collaboration of other European partner schools. It addressed the need for integrated environmental education at the primary level, aligned with the Sustainable Development Goals (SDGs) and the European Green Deal.

Both participating schools had already demonstrated commitment to sustainability through previous initiatives. However, this project aimed to implement a more structured, participatory, and student-led approach, encouraging learners not only to acquire knowledge about environmental issues but also to take meaningful action within their immediate context and beyond.

The main objectives of the project were:

- To raise students' awareness of the environmental impact of plastic consumption and waste;
- To promote critical thinking and inquiry skills through experiential, hands-on learning;
- To foster creativity and collaborative problem-solving through the production of educational materials and campaigns;
- To empower students as active participants in environmental decision-making at the school and community level;
- To develop pupils' digital literacy and intercultural communication skills through the use of eTwinning tools and online collaboration;
- To cultivate attitudes of responsibility, care, and global citizenship in line with the principles of education for sustainable development.

By embedding these goals into the school curriculum and promoting learner voice, the project created opportunities for deep engagement, meaningful learning, and real-world impact.

## 4. Materials and Methods

### 4.1 Learning Methodology

The pedagogical framework of the project was based on constructivist, inquiry-based, and participatory learning models, consistent with the principles of Education for Sustainable Development (UNESCO, 2017). Students were not passive recipients of environmental knowledge, but rather co-creators of meaning through reflection, exploration, and action. Teachers acted as facilitators and co-learners, guiding the process while gradually transferring ownership of learning to the pupils. The approach also drew on the principles of project-based learning (Brundiers, Wiek, & Redman, 2010), encouraging students to investigate real-life problems, propose creative solutions, and share their work with authentic audiences. Collaboration, communication, and peer learning were central to all phases of the project (Johnson & Johnson, 2009).

### 4.2 Tools and Resources

To support collaboration and creative production, the project made extensive use of open-source digital tools:

- **Twinspace**: the eTwinning collaborative platform, used for communication with partner schools and documentation of outcomes;
- **Padlet**: for brainstorming, reflections, and displaying students' work in shared virtual spaces;
- **Canva**: for the creation of posters, infographics, the student-led newspaper, and the visual design of a custom board game.

Other resources included science experiment kits, composting materials, recyclable craft supplies, printed educational leaflets, and research data from EU policy websites (European Commission, 2020). These tools enabled students to bridge the physical and digital learning environments, facilitating cross-border collaboration and multimodal expression (Redecker, 2017; Robin, 2008).

### 4.3 Activities Overview

The project was structured into four main phases:

- **Awareness and Investigation:** Students began by reflecting on their own consumption habits through a survey titled "What Rubbish Do I Throw Away?". They collected and analyzed data from classmates, leading to discussions on recycling, overconsumption, and plastic waste.
- **Research and Inquiry:** With the teacher's support, pupils explored the environmental and health impacts of plastic use. They analyzed age-appropriate articles and videos, and reviewed simplified summaries of EU environmental policies and the European Green Deal (European Commission, 2020). Simple science experiments, such as testing decomposition times of different materials, reinforced scientific thinking.

- **Creation and Expression:** Students worked in mixed-ability teams to design educational materials, including:
  - An environmental newspaper,
  - A board game with trivia on sustainability and climate action,
  - Posters and infographics using Canva,
  - Digital presentations on Padlet,
  - Recycled material art and composting activities,
  - Flower planting in the school garden.
- Community Engagement: The action plan culminated in a clean-up event at a nearby park and beach, followed by a school-wide exhibition and awareness day. Students led presentations for peers, parents, and teachers, becoming advocates for environmental responsibility.

### 4.4 Ethical Considerations

The project adhered to ethical standards set by both schools and the eTwinning platform. Written parental consent was obtained for participation, image use, and the publication of anonymized student work from families of pupils in both schools. All digital platforms used were GDPR-compliant and age-appropriate. The project emphasized inclusivity, respect, and cooperative learning, ensuring that all students across both schools could contribute meaningfully and safely to each activity.

## 5. Results and Discussion

The participatory sustainability action plan led to meaningful outcomes on multiple levels—cognitive, emotional, behavioral, and social. Throughout the process, students evolved from passive learners to empowered eco-citizens who were capable of taking responsibility for their actions and influencing others.

### 5.1 Student Engagement and Empowerment

From the early stages, students exhibited high levels of interest and participation. The project allowed them to connect classroom learning with real-world issues, which increased their intrinsic motivation and fostered a strong sense of ownership. For instance, the composting station and garden planting became daily routines voluntarily maintained by the students.

The creation of original materials, such as the environmental newspaper and board game, gave students the opportunity to act as content creators and peer educators. They presented their work with pride and confidence, not only in their own class but also during the awareness event for younger students and parents. This process nurtured their student agency (Huckle & Wals, 2015) and reinforced their ability to make informed and responsible choices.

### 5.2 Development of Key Competences

The project contributed to the enhancement of key competences outlined by the European Reference Framework, including:

- Environmental literacy: understanding systems, cycles, pollution, and sustainability.
- Digital competence: use of Canva, Padlet, and Twinspace for meaningful communication and production.
- Social and civic competence: collaboration, empathy, responsible decision-making.
- Cultural awareness and expression: through international sharing, design work, and cross-curricular integration.

Pupils were able to link classroom learning with real-world challenges, thereby deepening their conceptual understanding and sense of purpose.

### 5.3 School and Community Impact

The project influenced the broader school climate by encouraging sustainability as a shared value. Teachers from other classes showed interest in replicating some activities, while parents expressed enthusiasm and support. The clean-up action and awareness day were particularly well received, with several families joining voluntarily.

This ripple effect supports the view that student-led environmental initiatives can serve as catalysts for broader change (Mannion et al., 2011), contributing to a school culture of civic responsibility and ecological care.

### 5.4 Reflections and Challenges

Some challenges emerged, particularly in terms of balancing project time with curriculum obligations. Additionally, variations in digital fluency and language proficiency required differentiated scaffolding. However, these challenges were addressed through collaborative learning structures, peer mentoring, and the teacher's adaptive guidance (Johnson & Johnson, 2009; Dillenbourg, 1999).

The overall experience confirms that engaging students in participatory sustainability education is both feasible and impactful, especially when embedded in authentic contexts and supported by digital tools and cross-cultural collaboration.

## 6. Recommendations

Based on the outcomes and reflections of the project "Plastics plastics…everywhere!", several recommendations emerge for educators, school leaders, and policy-makers aiming to integrate sustainability and student participation into primary education.

### 6.1 Integrate Sustainability Across the Curriculum

Environmental education should not be confined to isolated events or extracurricular programs. Instead, it should be integrated into the core curriculum through

interdisciplinary projects, thematic units, and inquiry-based learning. Sustainability offers a rich, real-world context for language, science, mathematics, and the arts (UNESCO, 2017). Embedding such themes in everyday learning supports systemic thinking and relevance.

### 6.2 Promote Student Agency and Participation

Authentic engagement happens when students are empowered to ask questions, co-design learning paths, and act on issues that matter to them. Educators should create opportunities for student voice, responsibility, and democratic dialogue—cornerstones of environmental citizenship (Huckle & Wals, 2015). Project-based and collaborative methodologies are ideal for nurturing this agency (Brundiers et al., 2010; Johnson & Johnson, 2009).

### 6.3 Support Digital Creativity and Intercultural Collaboration

Digital tools such as Canva, Padlet, and Twinspace enhance students' creative expression, collaboration, and critical digital literacy (Redecker, 2017; Robin, 2008). Platforms like eTwinning enable safe and meaningful international partnerships. Teachers should be encouraged and supported in using these technologies to connect their classrooms with global sustainability issues.

### 6.4 Foster Whole-School and Community Approaches

Sustainability becomes embedded when entire school communities are involved. Projects should aim to include families, local organizations, and municipal bodies in actions such as clean-up campaigns, recycling drives, or awareness events. This approach promotes community engagement, shared responsibility, and civic pride (Mannion et al., 2011).

### 6.5 Invest in Teacher Training and Networks

Teacher professional development is essential to successfully implement sustainability initiatives. Training should focus not only on environmental knowledge, but also on participatory pedagogies, digital competence, and inclusive design (Burns, 2016). European programs such as Erasmus+ and eTwinning offer valuable frameworks for networking and collaboration (European Commission, 2020).

### 6.6 Ensure Sustainability and Continuity

To maximize impact, schools should move beyond short-term projects and toward long-term, evolving sustainability plans. Establishing "green teams" or student eco-councils can help maintain momentum and ensure continuity from year to year. Institutional support and alignment with national educational strategies can further anchor sustainability in school culture.

## 7. Conclusion

This study highlights the transformative potential of participatory sustainability education in primary schools. Through the project "Plastics plastics…everywhere!", pupils from two schools were not only introduced to pressing environmental issues but also empowered to take meaningful action within their schools and communities. By engaging in collaborative, creative, and real-world learning experiences, they developed critical competences, increased their environmental literacy, and began to see themselves as agents of positive change.

The project demonstrates that even at the primary level, students are capable of deep inquiry, responsible decision-making, and civic engagement—when given trust, space, and guidance. Their active involvement in designing and implementing environmental initiatives reinforced their sense of ownership and purpose and fostered social-emotional growth alongside academic learning.

Furthermore, the integration of digital tools and international collaboration added value to the process, connecting students with broader educational and societal goals, such as the Sustainable Development Goals and the European Green Deal.

Ultimately, this action plan serves as a testament to what is possible when schools embrace sustainability not as a peripheral theme but as a core educational mission. It calls for a pedagogical culture where young learners are not only taught about the world but are also invited to shape it—one small action at a time.

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**About the Author(s)**

**Theodoros Kartsoukis** is a primary school educator with 20 years of teaching experience in public education in Greece. He holds a Bachelor's Degree in Primary Education and has developed recognized expertise in classroom management, educational organization, and inclusive pedagogy. He is known for fostering meaningful teacher-student

interactions and for his adaptability to diverse teaching methodologies and interdisciplinary programs. He currently serves as Coordinator of European Projects on behalf of the Directorate of Primary Education of Viotia. His involvement in European educational programs includes coordinating two Erasmus+ KA2 projects—*"Plastics-Plastics Everywhere"* and *"Time Travel: The World We Want in 2121"*—as well as participating in several eTwinning initiatives such as *"Our Music, Our Traditions," "Mission X: Space School,"* and *"Travel with Flags."* He also contributed to the *"We Are Changing the Climate… by Recycling Europe!"* project under the Teachers4Europe program. His strong commitment to professional development is reflected in his continuous participation in national and European MOOCs, particularly on environmental education and eSafety, via the School Education Gateway and European School Academy. He is a certified trainer of trainers for the Greek Ministry of Education and has delivered distance training seminars through the National eTwinning Support Service in collaboration with the Panhellenic School Network. As co-author of this article, he contributed to the pedagogical design, coordination, and dissemination of the sustainability project presented.

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## References

Brundiers, K., Wiek, A., & Redman, C. L. (2010). Real-world learning opportunities in sustainability: From classroom into the real world. "International Journal of Sustainability in Higher Education, 11", 308–324. https://doi.org/10.1108/14676371011077540

Burns, T. (2016). "Governing education in a complex world". OECD Publishing. Retrieved from https://www.oecd.org/en/publications/governing-education-in-a-complex-world_9789264255364-en.html

Dillenbourg, P. (1999). What do you mean by "collaborative learning"? In P. Dillenbourg (Ed.), "Collaborative-learning: Cognitive and computational approaches" (pp. 1–19). Elsevier. http://dx.doi.org/10.1016/S0360-1315(00)00011-7

European Commission. (2020). "Erasmus+ Programme Guide". Publications Office of the European Union. https://erasmus-plus.ec.europa.eu/

Huckle, J., & Wals, A. E. J. (2015). The UN Decade of Education for Sustainable Development: Business as usual in the end. *Environmental Education Research, 21*(3), 491–505. https://doi.org/10.1080/13504622.2015.1011084

Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. "Educational Researcher, 38", 365–379. https://doi.org/10.3102/0013189X09339057

Mannion, G., Biesta, G., Priestley, M., & Ross, H. (2011). The global dimension in education and education for global citizenship: Genealogy and critique. *Globalisation, Societies and Education, 9*(3–4), 443–456. https://doi.org/10.1080/14767724.2011.605327

Redecker, C. (2017). "European framework for the digital competence of educators: DigCompEdu". Publications Office of the European Union. https://doi.org/10.2760/159770

Robin, B. R. (2008). Digital storytelling: A powerful technology tool for the 21st century classroom. "Theory into Practice, 47", 220–228. https://doi.org/10.1080/00405840802153916

UNESCO. (2017). "Education for sustainable development goals: Learning objectives". United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000247444