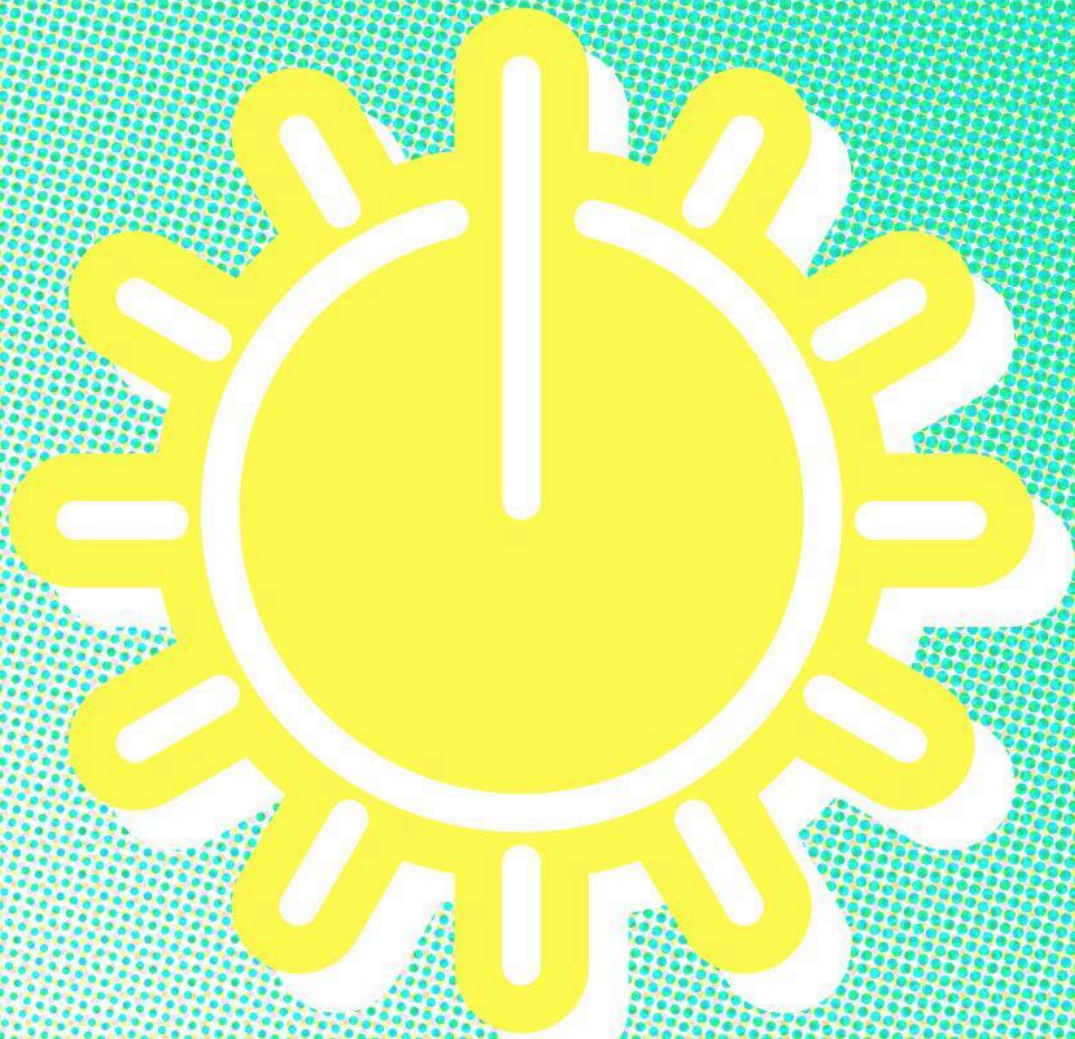


Taking action for reducing the environmental impact of digitalisation



EcoDigital Sustainability Strategy

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Partners



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1. Project Overview, Objectives and Results

EcoDigital: Taking Action for Reducing the Environmental Impact of Digitalization is an Erasmus+ KA2 project that runs from November 2022 until April 2025.

The project will carry out a survey to assess the level of awareness of the digital waste problem in school education, and will develop a literature review on the seriousness of the problem, training resources for teachers and a variety of ready-made assessment tools and policy recommendations. Thus, the project funding will fill important gaps in school education regarding digital waste management where young people are actively contributing due to the increased use of various entertainment platforms and social networks.

The objectives of the EcoDigital project are:

1. To raise awareness on the environmental impact of Digitalization
2. To expand training and educational tools on climate change-related issues that are less widespread such as sustainable digitalization, aiming to reduce carbon footprint emissions.
3. To develop digital skills that are beyond basic focus, such as competencies focus on sustainable digital transformation.
4. To assess capacities for sustainable digitalization and reshape relevant policy agendas to integrate the benefits of the proper use of relevant online tools and services.

The EcoDigital Project will develop:

1. A teachers' capacity building programme to expand teachers' knowledge of the tools and opportunities offered by digitalisation.
2. A school curriculum that includes all the necessary explanatory and educational resources on sustainable digitalisation.
3. A collection of assessment tools for assessing related competences.
4. Useful policy recommendations related to the education sector.

2. The importance of Sustainability in the context of the project

The EcoDigital Project represents a timely and crucial endeavor in the face of the growing environmental challenges posed by digitalization. As it unfolds between November 2022 to April 2025, the project places a spotlight on the indispensable need for sustainability in an increasingly digital world. With a meticulous plan, that includes a survey, literature review, teacher training resources, assessment tools and policy recommendations, EcoDigital is set to bridge significant gaps in school education where the issue of digital waste has long been overlooked.

Primary & Secondary School Teachers and Students, actively contributing to this problem through their extensive use of entertainment platforms and social networks will greatly benefit from the project's core objectives: raising environmental awareness, expanding climate change-related education, fostering digital competencies with a sustainability focus and reshaping policy agendas to integrate responsible online practices. The development of the teachers' capacity building program, a sustainable digitalization curriculum, assessment tools, and policy recommendations underscores the project's commitment to creating a more environmentally conscious, digitally savvy, and sustainable future for the education sector and beyond.

The importance of sustainability in the context of the EcoDigital Project cannot be overstated. In an era defined by rapid technological advancement and digital transformation, the project's focus on sustainability addresses critical issues and presents an opportunity for positive change. Here are some key aspects that highlight the project's significance:

1. **Environmental Responsibility:** As digitalization continues to expand, it has a profound impact on the environment. The production, use, and disposal of electronic devices and the energy consumption associated with digital technologies contribute to electronic waste and increased carbon emissions. The EcoDigital Project acknowledges this environmental footprint and aims to mitigate it by promoting responsible digital practices.
2. **Educational Gap:** School education has often lagged in addressing the environmental implications of digitalization. The project's comprehensive approach, including surveys, literature reviews, teacher training resources, and assessment tools, is poised to bridge this educational gap. By doing so, it equips both educators and students with the knowledge and tools needed to reduce their digital footprint.
3. **Youth Engagement:** Today's young people are the most digitally connected generation in history. Their extensive use of entertainment platforms and social networks means they have a significant role to play in sustainable digital practices. EcoDigital empowers young people by raising environmental awareness and fostering digital competencies with a sustainability focus. This not only benefits them but also positions them as advocates for sustainable digital habits in their communities.
4. **Climate Change Education:** Climate change is a pressing global issue, and understanding its relationship with digitalization is crucial. The project's emphasis on expanding climate change-related education ensures that students are well-informed about this critical challenge and how their digital choices can impact it.
5. **Policy Influence:** EcoDigital's focus on reshaping policy agendas is fundamental. By providing policy recommendations, the project aims to influence governments and educational

institutions to integrate responsible online practices into their frameworks. This influence can have a ripple effect, leading to broader adoption of sustainable digital practices.

6. **Capacity Building:** The development of a teachers' capacity building program and a sustainable digitalization curriculum is pivotal. Educators play a central role in shaping students' perspectives and behaviors. By equipping teachers with the knowledge and resources to teach sustainability in the digital age, the project creates a multiplier effect, impacting countless students over time.
7. **Long – term Vision:** The EcoDigital Project extends its timeline into 2025, highlighting its commitment to long-term impact. Sustainability is not a short-term concern, and the project's dedication to creating a more environmentally conscious and digitally savvy future demonstrates a forward-looking approach.

3. Sustainability Measures

A. Environmental Sustainability

Environmental sustainability is a core focus of our project, with a multifaceted approach aimed at reducing our ecological footprint. To this end, we have initiated a sustainability audit as an integral component of the project, diligently monitoring and mitigating our environmental impact. This includes measures such as minimizing paper waste, better organization of our data, deleting spam and unnecessary emails. In addition to our own efforts, we are committed to fostering sustainability among participating schools. We actively promote and support the adoption of eco-friendly digital practices, such as the use of energy-efficient devices and the proper disposal of electronic waste through recycling programs. Our dedication to environmental responsibility extends into the future, as we are developing a comprehensive long-term plan for project activities and materials that prioritizes the use of recycled and sustainable resources, ensuring that our project remains environmentally conscious and sustainable.

B. Social Sustainability

Social sustainability is a fundamental pillar of our project, centered on fostering a sense of community and collective awareness. We aim to establish a thriving community of practice that brings together teachers and students, creating an open and ongoing dialogue about the environmental implications of digitalization. To engage and empower students, we organize workshops and events that encourage them to participate in environmental activism. Furthermore, we prioritize social inclusivity by ensuring that our project materials and resources are readily accessible to a diverse audience, including marginalized communities, thus exemplifying our commitment to a socially sustainable approach.

C. Institutional Sustainability

Institutional sustainability is a vital aspect of our project, focusing on long-term integration and support within educational systems. To further empower schools and educators in their eco-friendly endeavors, we are creating a sustainability toolkit, providing valuable resources - the EcoDigital Curriculum and guidance for ongoing efforts to minimize the environmental impact of digitalization.

The centerpiece of this project is the EcoDigital Curriculum, which is designed to provide students with a comprehensive understanding of the digital landscape and its environmental impact.

Comprising six modules, this curriculum ensures that students are well-equipped to navigate the digital world responsibly. The first module, "Digitalisation," introduces students to the pervasive nature of digitalization in our daily lives, shedding light on the various dimensions in which it affects us. In the second module, "Cloud," students delve into the technical aspects of the cloud and its role in digitalization. This foundational knowledge prepares them to explore the third module, "Cloud services and tools," where they gain access to a range of digital services and tools to bolster their digital skill set. The fourth module, "Environmental impact of digitalization," delves into the ecological consequences of digital technology and offers detailed information on the environmental pollution linked to cloud usage and internet activities. The fifth module, "How to make your cloud usage greener," empowers students to take responsibility for their digital footprint by presenting practical ways to reduce environmental impact. The curriculum also engages students in sustainable digitalization through the sixth module, "Activism & Larping." This module encourages children to

interact with real-life scenarios and offers two educational directions: one focused on environmental activism and the other on creative activities using live-action role-playing (larping) techniques. Through these modules, the EcoDigital Curriculum ensures that students not only become adept in the digital realm but also conscious stewards of our environment.

D. Knowledge Transfer and Dissemination

Knowledge transfer and dissemination are central to our mission. We are dedicated to ensuring that the valuable insights and outcomes of our project reach a wide and diverse audience. To facilitate dialogue and collaboration, we host a capacity-building workshop in Iceland, hands-on educational activities in Greece and Romania, and national events in Iceland, Greece, Romania, Netherlands and Cyprus that provide a platform for educators and students to come together, learn, and exchange ideas to help achieve the project goals and minimize digital waste.

Furthermore, through the project's social media, website, newsletter, and press releases, the audience is encouraged to learn about the project, its achievements, and results.

Multiplier events will play a crucial role in disseminating outcomes promoting public participation. The EcoDigital project will organize a series of local dissemination events in each partner country, targeting local and regional schools, organizations and students.

Additionally, a final dissemination event will be held in Iceland to share project outcomes with a broader audience, including stakeholders and policymakers.

Lastly, by accessing research papers published by the consortium, the audience has the opportunity to gain insights into the project's survey results.

As of November 2023, the EcoDigital Project has achieved significant research milestones with the publication of a research article in three open sources: The article entitled "Teacher Experience and Perceptions of Sustainability Digitalization in School Education: An Existential Phenomenological Study" has been published in the esteemed "Sustainability" journal, indexed in Scopus and ISI Web of Science. This paper is authored by the EcoDigital Project Partners including Dr. Dimitrios Vlachopoulos, Dr. Rannveig Thorkelsdóttir, Dr. Despina Schina and Dr. Jona Gudrun Jonsdottir.

The project results were also presented during the EDUCATION WEEK 2023 which took place at the University of Iceland in September 2023.

One of the standout moments of the conference was the introduction of the EcoDigital project. Throughout the event, Dr. Rannveig Björk Thorkelsdóttir and Dr. Jóna Guðrún Jónsdóttir presented key insights from a survey that shed light on the awareness levels within school communities regarding the issue of digital waste. Notably, the project has also designed a comprehensive set of educational materials for teachers and students, as well as resources tailored for parents, school administrators, and other interested parties. These invaluable results were eagerly received by an engaged audience.

On 15th to 17th, 2023, the international EDUTECH conference took place at the University of Panama. During that event, the EcoDigital project partners made a virtual presentation featuring the abstract titled "EcoDigital: teachers' familiarization with the environmental consequences of the use of digital technologies." This presentation encompassed an overview of the EcoDigital project, along with preliminary findings derived from surveys and focus group discussions regarding teachers' familiarity

with the environmental implications of digitalization. Despite the fact that educators might not have been well-informed about the environmental aspects of digitalization, they were interested in incorporating this subject into primary school teaching. Also, teachers emphasized the necessity of developing training resources and educational materials tailored for classroom use. Such resources aimed to equip both teachers and students with essential green competencies, digital skills, and a heightened awareness of the significance of reducing their digital carbon footprint while embracing sustainable digital practices.

E. Future plans

Our future plans for the EcoDigital project are geared toward long-lasting impact and expansion. We are in the process of crafting a sustainability roadmap that will guide our activities beyond the project's completion, ensuring that the principles and achievements of EcoDigital continue to thrive. We aim to explore new opportunities for follow-up projects that will build upon the solid foundation laid by EcoDigital, adapting to evolving digital sustainability challenges and extending our focus. It's important to note that our project website will remain accessible for five years after the project's conclusion, serving as a valuable resource and testament to our commitment to sustained progress in digital sustainability.

4. Project Achievements

- **Comprehensive study exploring the level of knowledge of the environmental impact of internet and cloud use due to the increased digitalisation of our time by teachers in countries Iceland, Greece, Cyprus, the Netherlands and Romania.**

A comprehensive study was conducted to examine the level of knowledge among teachers in five diverse countries: Iceland, Greece, Cyprus, the Netherlands and Romania. This study involved 120 teachers participating in surveys with an additional 18 teachers being interviewed. Moreover, the project's reach extended to 240 students who provided valuable insights through questionnaires.

The project's inclusivity and commitment to a holistic approach to sustainable were further exemplified by engaging 90 various stakeholders including parents, community members, members of environmental organizations, and employees of digital companies who participated in the survey. These achievements underscore the project's commitment to gathering diverse perspectives and data to inform its mission of fostering a more environmentally conscious and digitally responsible future in education.

- **Research paper entitled "Teacher's Experience and Perceptions of Sustainable Digitalization in School Education: An Existential Phenomenological Study"**

The research paper entitled **"Teacher's Experience and Perceptions of Sustainable Digitalization in School Education: An Existential Phenomenological Study"** authored by the EcoDigital Project Partners: Dr. Dimitrios Vlachopoulos, Dr. Rannveig Thorkelsdóttir, Dr. Despoina Schina, Dr. Jona Gudrun Jonsdottir explores teachers' awareness, experiences, and perceptions of the environmental impact of digitalization in school education across Iceland, Greece, Romania, Cyprus & the Netherlands. Using an existential phenomenological approach, the study uncovered the real-life experiences of 29 dedicated teachers through group semi-structured interviews.

The key findings of this study shed light on several crucial insights. Firstly, it is apparent that teachers demonstrate a high level of awareness concerning pressing environmental concerns particularly climate change and pollution. Furthermore, the study underscores that environmental education is actively being integrated into school curricula, focusing on subjects such as recycling, composting, and pollution control. However, a somewhat unexpected revelation emerges from the research: while educators exhibit proficiency in traditional environmental awareness issues, they may not be as well-informed about the environmental consequences of digitalization. This includes aspects like energy consumption, carbon emissions, and electronic waste associated with the digital age, highlighting a potential gap in their environmental knowledge.

- **Teachers capacity building activity in Reykjavik, Iceland in September 2023.**

The EcoDigital Capacity Building Workshop, held at the University of Iceland in Reykjavik on September 4th and 5th, 2023, witnessed an enthusiastic turnout, featuring 28 passionate participants, including dedicated teachers from the five partner consortium countries: Iceland, Romania, Cyprus, Greece, and the Netherlands. The primary focus of this workshop centered on the critical subject of digital waste, with the goal of generating innovative ideas to minimize digital waste, inspire students to embrace sustainability, and explore individual contributions to this cause.

Throughout the event, participants engaged in a diverse array of workshops and programs designed to deepen their understanding of the project's various aspects:

- The University of Iceland introduced the project and shared initial project outcomes.
- Big Bang's Experiential Sociodrama workshop encouraged exploration of the sociocultural dimensions of digitalization and its environmental impact.
- Stimmuli's digitalization workshop highlighted the pivotal role of technology in addressing and mitigating environmental concerns.
- CSI's workshop provided practical strategies for reducing the environmental impact of digitalization and promoting sustainable practices in the digital
- The workshop by Centrul Judetean de Excelenta Galati delved into personal actions individuals can take to integrate sustainability into their daily lives.
- SkillsUp Research & Training Services led a session on the use of digitalization tools in education, emphasizing the importance of leveraging technology for educational purposes.
- Finally, the workshop by Big Bang School offered valuable insights to educators on teaching and promoting a more sustainable approach to digitalization.

Collectively, these sessions provided participants with a comprehensive education on the multifaceted world of sustainable digitalization.

- **The EcoDigital Curriculum**

In November 2023, the EcoDigital Curriculum was successfully implemented by the project partners, with STIMMULI taking the lead in this significant work package. This curriculum is composed of six comprehensive modules aimed at equipping students with a deep understanding of digitalization and its environmental impact. The modules are as follows:

1. "Digitalisation - an integral part of our daily life": This module introduces students to the pervasive role of digitalization in our daily lives, providing insights into its multifaceted dimensions.
2. "Cloud: what is it and what does it entail?": Offering a slightly technical explanation, this module enables students to grasp the concept of the cloud and its significance in the digital landscape.
3. "Cloud services and tools": This module provides students with a collection of digital services and tools, fostering the development of a diverse set of contemporary digital skills.
4. "Environmental impact of digitalisation": Delving into the environmental consequences of cloud and internet usage, this module offers detailed information and data on the pollution generated by digitalization.
5. "How to make your cloud usage greener?": This practical module equips students with actionable strategies to reduce their environmental footprint in the digital realm.

6. " Activism & Larping for sustainable digitalization": Designed to engage and captivate students, this module encourages interaction with real-life scenarios. It incorporates two educational directions: one focused on environmental activism and the other on creative activities utilizing the educational technique of larping.

5. Conclusion

In conclusion, the EcoDigital project, spanning from November 2022 to April 2025, has emerged as a significant and timely initiative in the face of the escalating environmental challenges associated with digitalization. With its unwavering commitment to sustainability, the project has addressed critical gaps in the realm of school education, particularly in terms of digital waste management, a concern increasingly exacerbated by the widespread use of digital platforms by young people. EcoDigital's four key objectives, spanning from raising environmental awareness to reshaping policy agendas, reflect its comprehensive approach to creating a more environmentally conscious and digitally responsible educational landscape.

The project has achieved remarkable milestones, with a comprehensive study, an enlightening research paper, and a teachers' capacity-building activity in Reykjavik. Additionally, the implementation of the EcoDigital Curriculum marks a significant step towards equipping students with the knowledge and skills necessary to navigate the digital world responsibly.

Sustainability measures encompass environmental, social, institutional, knowledge transfer, and adaptation aspects, showcasing the project's holistic approach to addressing the multifaceted challenges of digitalization. By embedding environmental responsibility, fostering social inclusivity, ensuring institutional sustainability, promoting knowledge sharing, and adapting to challenges, EcoDigital is poised to make a lasting impact.

As we look to the future, the project's sustainability roadmap, funding initiatives, and opportunities for follow-up projects emphasize a continued commitment to promoting sustainable digital practices. The five-year accessibility of the project website will serve as a valuable resource and testament to EcoDigital's dedication to ongoing progress in digital sustainability. In an era defined by rapid technological advancement and digital transformation, the EcoDigital project provides a beacon of hope and a blueprint for a more environmentally conscious, digitally savvy, and sustainable future in education and beyond.