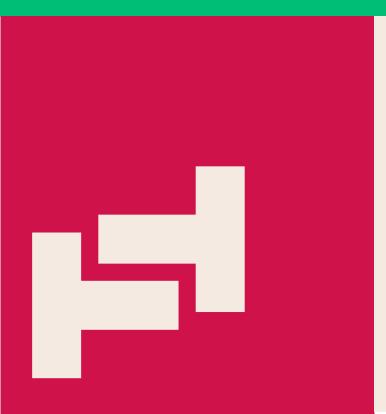
DEVELOPING SUSTAINABILITY SKILLS

for secondary school teachers
THROUGH EDUCATIONAL TECHNOLOGY

complex training

educational methodologies

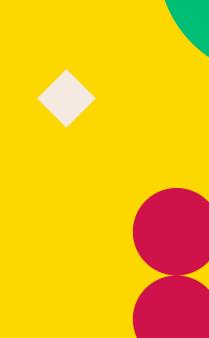
Edtech businesses



Visegrad Fund

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The project is co-financed by the governments of Czechia, Hungary, Poland and Slovakia through Visegrad Grants from the International Visegrad Fund. The mission of the fund is to advance ideas for sustainable regional cooperation in Central Europe.

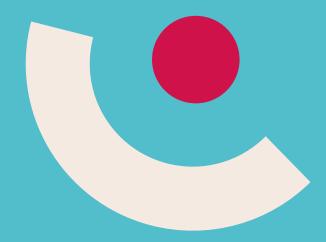


ABOUT THE PROJECT

The international project "Education Technology as a Contributor to Sustainability Skills" aims to support the development of skills necessary for sustainability in the Visegrád (V4) countries through modern pedagogical and educational technology (EdTech) approaches. The project is implemented by the HEPA Hungarian Export Development Agency, involving three partners: the Education: Next Educational Technology Association (Hungary), the Institute for the Innovation of Education (Slovakia) and Maker Faire Czech Republic (Czech Republic). The implementation is financed by the International Visegrad Fund.

The project aims to build a bridge between education, technological innovation and sustainability, while strengthening the network of educational actors in the region. Sustainability is

no longer just an environmental issue, but also an economic and social one, and education systems play a key role in ensuring that young people acquire green competencies that enable them to become conscious decision-makers, system-thinkers, and active citizens. The project supports this attitude formation, with particular attention to the methodological and technological preparation of teachers.



One of the main pillars of the program is a 30-hour blended teacher training course, which builds on the application of STEAM and SEEQS approaches in addition to the theoretical and practical aspects of sustainability. Participating teachers were able to learn about modern educational methodological solutions through practical examples and digital tools (e.g. Micro:bit, Canva, gamification). The training was complemented by a mentoring program, in which teachers shared their knowledge directly with their students and colleagues in a school environment.

The project placed great emphasis on the active involvement of the edtech sector. The direct connection between educational technology companies and educators has created an opportunity for companies to get a more accurate picture of the real needs of educational practices and develop their products and solutions accordingly. This bilateral collaboration has contributed to improving

the relevance and usability of edtech solutions. The project organizes networking events in three countries - Hungary, Slovakia and the Czech Republic - which provide an opportunity for educators, edtech companies, policymakers and economic actors to meet. The events promote knowledge sharing, shared thinking, and the development of new professional collaborations. Among the tangible results of the project is this e-book, available in multiple languages (Hungarian, Slovak, Czech, English), which presents the topics, methodological background and good practices of the training. In addition, a teacher training curriculum ready for accreditation has been created, which can be freely adapted in the educational environment of other countries.

TOGETHER FOR SUSTAINABILITY

INTRODUCING PROJECT PARTNERS





GÁBOR JENEI

HEPA Hungarian Export Development Agency
CEO

Sustainability and digitalization are among the most significant global trends of our time, impacting not only the global economy and business life, but also our everyday lives. The achievements of digitalization facilitate the green transition process, and improving environmental conditions strengthen competitiveness. Innovative environmental technologies, consumers and companies active in global markets also play a key role in this process, which is why HEPA has made it its mission to facilitate capacity development related to sustainability and digitalization. It does all this to ensure that Hungarian businesses continue to be at the forefront of rapidly developing and changing foreign markets through qualified employees. The innovative training methods in the book promote knowledge and technology sharing in the V4 countries, thus facilitating the acquisition of sustainability skills for younger generations.



ÁDÁM HORVÁTH

Education: NEXT Educational Technology Alliance

President

Sustainability is not just a scientific or social challenge, but one of the most defining common issues of our time. Therefore, its education is of paramount importance, especially in secondary school education, where the outlook of the future generation is shaped. On behalf of the Education: NEXT Educational Technology Association, we are pleased and proud to join the international collaborative program that aims to develop sustainability skills through teacher training, educational technology, and regional knowledge sharing.

The in-service training course developed within the project offers practice-oriented, cross-subject methodological approaches to teachers. At the same time, it contributes to the development of students' systemic thinking, critical attitude, and sense of social responsibility. We are convinced that educational technology – whether it is simulations, digital models or visualization tools – opens up new dimensions in the experiential and deep understanding of complex sustainability issues.

We paid special attention to building relationships between edtech companies and educators, as well as creating a multilingual e-book and freely adaptable curriculum package. The impact of the project goes far beyond the participating countries: it aims to strengthen an educational culture where technology and sustainability support each other, contributing to a more conscious, responsible and prepared upbringing of future generations.





TÜNDE BERTA

Institute for Innovative Education (IIV SK)

Center Manager

Our non-profit organization is actively working to renew education in Slovakia and internationally. Since our founding in 2017, our goal has been to provide methodological and professional support to educators and schools, with a particular focus on educational innovations and educational technology (EdTech) solutions. Our programs focus on developing student autonomy, creative thinking, digital competencies, and future-oriented skills.

Within the framework of our international projects (RRF, CBC, OP), we develop modern teaching materials, integrate sustainability topics into education, and support knowledge sharing by organizing conferences and professional workshops. Our 43 mentors and a network of over 500 teachers actively help educators use innovative methods in their teaching. We believe that through technological tools and experiential learning, we can achieve real change in education - not only in Slovakia, but also on the international stage.



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VOJTĚCH KOLAŘÍK

Maker Faire Česká republika
Board member

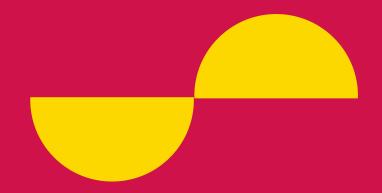
Maker Faire Česká republika is a non-profit organization that organizes ten Maker Faire festivals annually in various cities in the Czech Republic under an American license. The events attract over 30,000 visitors annually and offer a unique platform for the intersection of creation, creativity and education. Our programs focus on a hands-on, experiential STEAM approach that develops manual skills, science and technology competencies, and creative thinking.

Our festivals offer an open, inspiring learning environment where visitors of all ages can discover the joy of creation, while also reflecting on social and environmental challenges. We pay special attention to supporting educators: we hold workshops for teachers and trainers that help integrate practice-oriented learning – such as artificial intelligence and other EdTech solutions – into teaching. We are actively connected with Czech and European educational organizations, institutions and individual professionals, so our activities contribute to the renewal of education at both the local and international levels.



ABOUT THE TRAINING

"CHANGE TO MAKE A DIFFERENCE!"



SUSTAINABILITY TEACHER TRAINING FOR SECONDARY SCHOOL TEACHERS



PURPOSE AND SIGNIFICANCE OF THE TRAINING

The global challenges of the 21st century – such as climate change, the ecological crisis, social inequalities and resource depletion – increasingly call attention to the importance of sustainability education. The 30-hour teacher training course entitled "Change to make a difference!" provides secondary school teachers with the knowledge and tools they need to integrate sustainability aspects into their own subjects.

The training is based on an adaptation of the Hawaiian SEEQS (School for Examining Essential Questions of Sustainability) school model, which places fundamental questions of sustainability at the center of learning. The goal of the program is for teachers to acquire methodological and content tools that will help their students become conscious citizens capable of critical thinking and responsible action.



THE TARGET GROUP

The direct target group of the training is high school teachers who are committed to sustainability education and want to develop students' systems thinking, social responsibility, and green competencies through their subjects. The program also provides institutions employing multiple teachers with the opportunity to innovate their sustainability practices at the community level.

STRUCTURE OF THE TRAINING

The 30-hour training is delivered in a blended format, with 20 hours of online, self-study and 10 hours of in-person workshops. Learning materials, case studies, interactive exercises and videos available on digital platforms provide flexibility, while in-person opportunities create opportunities for exchange of experiences and collaboration.





THE THEME

The topics of the training modules are based on the following main areas:

- Basic sustainability knowledge and values
 (e.g. ecological footprint, circular economy)
- Systems thinking and ESG approach
- Developing sustainability competencies integrated into subjects
- Innovative pedagogical methods
 (e.g. project-based learning, use of AI tools)



THE PEDAGOGICAL SIGNIFICANCE OF THE TRAINING

The training represents an internationally adaptable, universal approach that fits the public education strategies of different countries, such as Hungary, Slovakia, and the Czech Republic. Although the National Core Curriculum (NAT) also highlights sustainability education as a cross-curricular development goal in the Hungarian context, the concept of the training goes beyond the national framework. The themes and methodology can be easily adapted to any public education system, where the goal is to strengthen students' environmental and social responsibility and active citizenship.

Sustainability pedagogy not only includes environmental education, but also contributes to students' critical thinking, reasoning skills, cooperation, and decision-making responsibility. All of this is closely related to the goals of modern education, which not only conveys knowledge, but also develops values and competencies.

ESG APPROACH IN EDUCATION

The training pays special attention to environmental, social and corporate governance (ESG) aspects, which have become relevant in the world of education today.

Teachers will learn about examples of sustainable operations in different organizations through case studies and discuss how this knowledge can be integrated into educational practice. The goal is for students to become able to analyze sustainability performance and take a critical approach to green communication (e.g. recognizing greenwashing phenomena).

This approach connects education with economic and social responsibility, laying the foundation for students' future roles as conscious consumers, employees, and citizens.

SAMPLE EXERCISES FROM PRACTICE

During the training, participants receive a differentiated pedagogical toolkit - these tasks not only promote student activity, but also provide opportunities for independent thinking, reasoning, and the analysis of local problems. Some examples from practical tasks:

Waste and recycling:

- Beginner level: Creating an infographic about selective collection.
- Intermediate level: Waste audit at school, development of proposals.
- Advanced level: Planning a school campaign to reduce waste.

Sustainable energy:

- Beginner: Presentation on renewable energy sources.
- Advanced: Design of a sustainable school building (solar energy, green roof, rainwater use).

Sustainable lifestyle:

- Intermediate: Calculation and interpretation of ecological footprint.
- Advanced: Research on the sustainability of school canteens.



THE LONG-TERM IMPACT OF STUDENTS' GREEN COMPETENCIES

The training prioritizes the development of green competencies, which are essential for students to be able to thrive in the social and economic environments of the future. Sustainability competencies – such as critical thinking, systems thinking, problem solving and responsible decision-making – help students to:

- become a conscious consumer,
- recognize the local aspects of global problems,
- cooperate for community goals (e.g. community gardens, energy projects),
- be competitive in the labor market in the long term.



INNOVATIVE PEDAGOGY FOR THE FUTURE

The training not only prioritizes sustainability content, but also aims to develop educational methodology as part of 21st century pedagogical renewal. The tools used include digital platforms (e.g. Google Drive, Canva, online quizzes), the inclusion of artificial intelligence, and interactive, project-based, and cooperative learning techniques.

The clear message of the training is: sustainability education can only be effective if it is implemented in an experiential, learner-centered and innovative pedagogical environment. This program offers workable, practical tools, examples and inspiration for any school type and national curriculum framework.

The training content is available and downloadable from www.educationnext.hu.



EDUCATIONAL METHODOLOGIES

BEST PRACTICES AND DIGITAL TOOLS

The issue of sustainability now affects not only environmental, but also social and economic dimensions, and is therefore playing an increasingly important role in education. Schools must develop competencies that enable young people to provide conscious, responsible and systemic responses to global challenges at the local level. This requires innovative pedagogical methods that simultaneously support critical thinking, problem solving, community collaboration, and the development of a sustainable vision.

During the training course "Change to make a difference!", we developed modern educational approaches and good practices that provide tangible support for teachers.

USE OF INNOVATIVE TEACHING METHODOLOGIES

A complex, systemic approach is essential for the success of sustainability education. The training combined 20 hours of online and 10 hours of face-to-face learning elements, offering flexible learning options. The program was based on the Hawaiian SEEQS model, which is based on classroom processing of "fundamental sustainability issues."

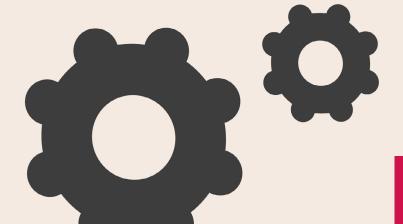
Participants were also able to master the basics of self-regulated learning, project-based education, systems thinking, and the pedagogical application of digital and artificial intelligence tools.

During the training, special attention was paid to the integration of the UN Sustainable Development Goals (SDGs) and the ESG approach into the subjects, supporting the development of students' critical attitude, systems approach, and social responsibility.

DEVELOPMENT OF SUSTAINABILITY COMPETENCIES

During the training, numerous good practices were created that can be adapted in class-room, extracurricular or modular form, which help develop sustainability competencies, including:

- Creating a sustainability concept map:
 Systemically connecting sustainability topics with shared thinking.
- Generate an opinion line discussion:
 Developing a culture of debate organized around local and global sustainability issues.
- Sustainable city planning:
 An interdisciplinary project method that encourages creative and systemic thinking.
- Ecological footprint calculation:
 Conducting sustainability analyses at individual and community levels.
- Processing ESG case studies:
 Critical evaluation of corporate practices and subsequent transfer to students.



AT THE END OF THE TRAINING, THE TEACHERS DEVELOPED THEIR OWN ACTION PLANS, WHICH THEY IMPLEMENTED IN THEIR LOCAL SCHOOL COMMUNITIES.

THIS ALLOWED STUDENTS TO BECOME ACTIVE PARTICIPANTS IN THE SUSTAINABILITY EFFORTS OF THEIR OWN ENVIRONMENT.



EDUCATIONAL TECHNOLOGY SOLUTIONS IN THE SERVICE OF SUSTAINABILITY EDUCATION

Educational technology significantly facilitates the experiential and learner-centered processing of complex sustainability issues. The following digital tools proved to be particularly useful during the training:

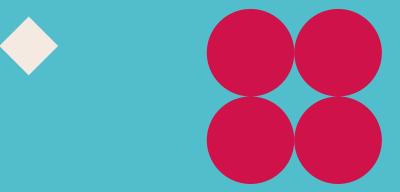
- Micro:bit: Support for programming-based sustainability projects.
- Canva: Easy creation of digital posters, presentations, and creative materials.
- Gamification: Creating a motivating, playful learning environment.
- Application of artificial intelligence: Creative production of mind maps, quizzes, and visual materials.

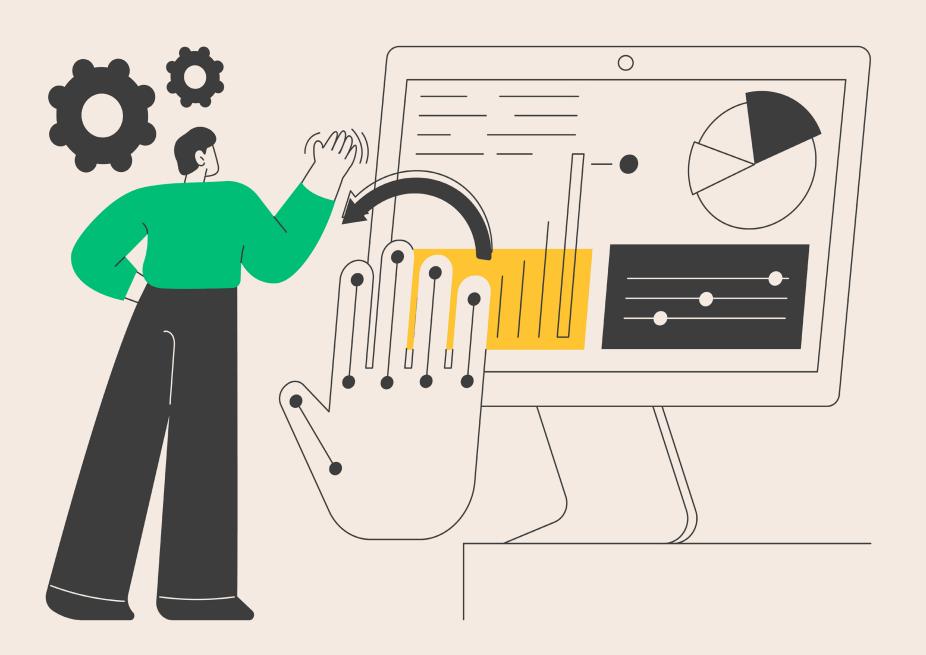
Educational technology tools – both hardware and software – have not only developed students' digital competencies, but have also created opportunities for sustainability topics to be introduced into the school learning environment with a new approach and greater depth.

EDUCATIONAL TECHNOLOGY SOLUTIONS

INNOVATIVE SUPPORT WITH HUNGARIAN, SLOVAK, CZECH TOOLS







29

MAKER'S RED BOX

(MAKERSPACE KFT.)

Maker's Red Box is a Hungarian-developed, internationally recognized educational technology company that offers innovative, maker education materials.

Their goal is for students to acquire modern knowledge in a creative, problem-focused way and by working in teams.

CONNECTION: The curriculum, titled "Global Warning," addresses the topic of climate change, helping students develop scientific thinking, a critical attitude, and the search for sustainable solutions.

INNOVATION: Creative pedagogy curriculum package, supporting project-based learning.

LANGUAGE: Hungarian, English (international availability)

www.makersredbox.com



BOOKR KIDS

(MÓRA-BOOKR KIDS KFT.)

BOOKR Kids develops digital, interactive storybooks and educational apps that aim to develop reading skills and transfer knowledge in a playful, experiential way. The content is created in collaboration with educators and psychologists.

CONNECTION: The offer includes many stories dealing with environmental and social topics, which help develop a sustainability attitude in early life.

INNOVATION: Gamified learning environment, digital library, reading development.

LANGUAGE: Hungarian, English + multiple localized languages

www.bookrkids.com



ZÖLD FÖLD [GREEN EARTH] (ALAPÉRTÉKEK NONPROFIT KFT.)

The Green Earth complex sustainability education program is aimed at primary and secondary school students and has been organically integrated into the education system. Its aim is to incorporate sustainability competencies into everyday teaching and learning and to develop a systems approach. The program includes the Green Earth sustainability subject, the Sustainability Theme Week, a national project week, and the Green Bridge volunteer expert program, which connects schools with companies and organizations.

CONNECTION: The program's thematic curriculum, activities, teacher manuals and training, as well as the network of external experts, help shape students' perspectives and develop their systems thinking.

INNOVATION: The Program effectively combines three attitude-shaping tools: the subject that is present in everyday life, the project week that provides a special focus, and the integration of the world of experts outside of school into the world of school. The knowledge material includes cross-curricular modules, a systems approach, and classroom integration.

LANGUAGE: Hungarian, English



STARSCHOOL

(BALÁZS-DIÁK ZRT.)

StarSchool is a digital learning space based on artificial intelligence that offers personalized, playful learning paths for children aged 3–12.

The system can support both home and school learning.

CONNECTION: With the help of the platform, teachers and parents can also incorporate sustainability topics into the learning process, thus developing environmental awareness at an early stage.

INNOVATION: Al-based adaptive learning system, developmental games, learning profiles.

LANGUAGE: Hungarian

www.starschool-edu.com



32

REDMENTA

(REDMENTA EDUTECH KFT.)

Redmenta is a widely used, award-winning Hungarian-developed platform that enables the creation of digital learning materials and automatically graded tests. A popular platform among teachers and students, it supports personalized learning.

CONNECTION: Teachers can create their own sustainability-themed assignments and students can practice interactively. Social sharing expands the range of content related to the topic.

INNOVATION: Al-based evaluation, task bank, learning incentive system.

LANGUAGE: Hungarian, English

33

EDUBAT

[HOLOGRAPHIC VR-BASED SUSTAINABILITY EDUCATION] (MATSUKO)

MATSUKO is a Slovakian technology company that develops holographic and virtual reality (VR) solutions. The EduBat program, created in collaboration with InoBat, aims to revolutionize STEM and sustainability education in Slovakia. Through EduBat, students can learn about battery research, development, and manufacturing in an interactive VR environment, thereby acquiring the skills needed for a sustainable future.

CONNECTION: The EduBat program is located at the intersection of sustainability and STEM education, promoting students' environmentally conscious thinking and expanding their technological knowledge.

INNOVATION: Applying holographic and VR technology in education, providing a realistic learning experience.

LANGUAGE: Slovak, English

MATSUKO

34

HYDROGEN GRAND PRIX (H2GP)

[HYDROGEN-BASED STEM EDUCATION PROGRAM] (HORIZON EDUCATIONAL)

Horizon Educational is a Slovakia-based company that offers hands-on STEM curriculum and educational programs, with a focus on renewable energy. As part of the Hydrogen Grand Prix (H2GP) program, students design and build hydrogen-powered model cars while learning about clean energy and the principles of sustainability.

CONNECTION: The H2GP program helps students develop an environmentally conscious attitude and an understanding of renewable energy sources.

INNOVATION: Hands-on learning with hydrogen technology, a competition-based educational approach.

LANGUAGE: English, Slovak

www.horizoneducational.com



LIPKA ENVIRONMENTAL EDUCATION PROGRAMS (ENVIRONMENTAL EDUCATION CENTRE)

Lipka is one of the oldest and largest environmental education organizations in the Czech Republic. More than 20,000 students participate in their one- or multi-day programs each year, which aim to strengthen sustainability and a commitment to nature. Lipka offers classes in a variety of educational settings, including school classes, afternoon workshops, and summer camps. They also organize teacher training and university courses, promoting the integration of environmental education into education.

CONNECTION: Lipka's programs help students develop an environmentally conscious attitude and commitment to sustainability.

INNOVATION: Practical learning in a natural environment, using interactive and experience-based teaching methods.

LANGUAGE: Czech



BEECARBONIZE

(CHARLES GAMES)

Charles Games is a Prague-based video game development studio that creates educational games. Beecarbonize is a card-based simulation game that addresses the topic of climate change and sustainability. The goal of the game is for players to understand the complexity of environmental decisions and their long-term impacts.

CONNECTION: Through the Beecarbonize game, students can learn about the challenges of sustainability and the consequences of environmental decisions in an interactive way.

INNOVATION: An educational video game that conveys the importance of sustainability in a fun way.

LANGUAGE: English, Czech

BEECARBONIZE

Climate survival card strategy

READMIO APP

Readmio is a Prague-based EdTech startup that has developed an interactive storytelling app. The app aims to promote quality time between parents and children while conveying valuable lessons through stories, including topics of sustainability and environmental awareness.

CONNECTION: Readmio's stories include tales that emphasize the importance of nature conservation, environmental protection, and sustainable living.

INNOVATION: An interactive storytelling app with voice recognition that makes learning an experiential experience.

LANGUAGE: English, Czech

www.readmio.com





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