Entrepreneurship Education

ENTREPRENEURSHIP EDUCATION AND ENVIRONMENTAL EDUCATION



lipka

Entrepreneurship education and environmental education

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INTRODUCTION

Dear educators, teachers and others interested in entrepreneurship education, you have opened the third booklet in a series of publications aimed at introducing entrepreneurship education in its entirety.

You will find out why it is important to link entrepreneurship education with environmental education, the supporting elements of ESD that we use and the international framework for this area of education. There are also methodological suggestions and concrete examples from practice.

If you want to clarify the basic terminology, you should refer to the introductory publication **What is entrepreneurship education.** To develop this area into other directions, read about how to approach **a project in the context of entrepreneurship education**, why it is important to **link entrepreneurship education with the surrounding community**, and what the **Entrepreneurial School certification entails**.

Enjoy expanding your horizons!
The Lipka team- Entrepreneurial Minds branch

WHY LINK ENTREPRENEURSHIP EDUCATION* AND ENVIRONMENTAL EDUCATION (EE)?

In the past, we have divided the world into individual subjects for school lessons so that we can better concentrate students' focus on a chosen area. Pupils therefore have lots of separate 'drawers' in their heads with mathematical procedures, geographical knowledge, science knowledge... But the world is not separated into individual compartments. **The world is made up of connections and contexts**. Our life should be based on knowledge of the world, understanding of processes and phenomena, the ability to self-realize, to make changes, and also on a responsible attitude not only to ourselves but also to our environment.

As educators, we try to present students with topics and areas that they are now and will be dealing with in real life. In the future, our pupils face two huge challenges:

- a world of constant and very rapid changes that the 21st century brings to all areas of life,
- responding to, mitigating and adapting to the ongoing climate change that is profoundly affecting our way of life.

* Marked terms can be found in the **Glossary** at the end of the brochure.

To tackle these challenges, our society needs actionable, entrepreneurial and creative leaders. That is why it is important to nurture and support such future leaders. **Developing students' entrepreneurial competences and their ability to respond to frequent changes is an essential part of addressing environmental challenges**.

Competences for entrepreneurship include, for example, knowing one's own strengths and weaknesses, cultivating self-confidence, strengthening the will and courage to take healthy risks and realise one's intentions, developing ethical principles or awareness of responsibility and social compassion.



The development of entrepreneurship competences is therefore not a specific teaching in one or two lessons per week. It is comprehensive development, tools and teaching methods across the whole schooling. It is therefore not so much about the WHAT, but the HOW. Entrepreneurial, creative and action-based competencies are a way for students and educators to develop their chosen content and topic of study, as well as to solve small and large-scale problems in the world around us.

If we take a comprehensive approach to entrepreneurship education at school, according to the Development Continuum of Key Competences for Entrepreneurship*, environmental education, especially focused on climate change, will be one of the important pillars of this area.

Like entrepreneurship education, environmental education should be approached in a comprehensive manner across the whole school curriculum.

In the course **Climate Change**, Jan Činčera, an eco-educator from People in Need, lists the **competences that need to be developed in pupils**:

- **competence in systems thinking** – climate change is a complex phenomenon manifested not only by shifts in the climate system itself, but also in the social and economic system,
- **competences to work with attitudes and values** – climate change is causing huge social conflicts due to conflicting views, so pupils need to be able to navigate their own attitudes and values and those of their environment and be able to argue factually,
- **forward thinking competence** – to be able to think divergently and look for alternative ways, to work with a vision, to compare and evaluate different scenarios,
- **problem-solving competences** – to critically process data and analyse a problem, find a suitable solution, plan a small or large action and implement it,
- **strategic competences** – the ability to set realistic goals, procedures and consider risks,
- **collaborative competence** – we can only solve partial issues on our own, for larger tasks and goals we need to seek and establish joint solutions.

We can see a **clear correspondence between this list and the competences for entrepreneurship, and in both areas we have the same goals** – to help pupils understand the world around us, to look for opportunities, to have ideas, skills and courage to manage change, to deal with its impact and to make the transformations themselves.

Climate change education should lead to the development of learners at three levels:

- **understanding** – gaining knowledge and developing critical and systems thinking,
- **seeking social consensus** – understanding differences of opinion and developing empathy, defining one's own position,
- **active approach** – motivation and ability to engage in concrete solutions, development and support of self-efficacy competences, i.e. perception of one's own abilities and possibilities to implement and change something concrete.

According to the research **Czech Climate 2021** (Krajhanzl, Chabada, Svobodová, Kácha, Vintr, Becková et al., 2021), older students strongly perceive the ongoing climate change and the urgency of addressing it, but at the same time feel personal powerlessness. Therefore, they need to experience the reality of a concrete intention and plan for change at school. We have a tremendous opportunity to help schoolchildren develop competences for entrepreneurship, to encourage them to take action and to implement concrete ideas with them. To show them that they too have enormous power to change the world around them. Action (and therefore entrepreneurial) competences are important for pro-environmental behaviour. It is not enough just to have knowledge about the environment or to seek social consensus. That will not solve the situation around climate change, for example. However, if we apply the appropriate competences, we can move forward towards solutions or adaptation to new conditions.

A major challenge in climate change education is the high level of uncertainty. Unfortunately, we can only make assumptions about how the climate system will evolve and what impacts changes will have on specific areas of the world. However, we always take into account several scenarios and different versions of climate model inputs. Yet we are certainly not able to capture all the connections and possibilities of the complex world around us



"Sometimes it only takes a little to make a big difference."
Vítězslav Dohnal, Principal of ScioSchool Brno Heršpice

What to avoid in teaching about climate change or other environmental topics? Presenting a huge amount of information without emphasis on understanding, picking out details without complex connections, big scares without a starting point, and moralising.

The domain of climate change education should be to explain that we cannot predict future developments and are not clear about everything. It is good to let the pupils directly trace the information, compare it and discuss it.

It is most valuable to present the topic from multiple perspectives, to debate alternative views, to carry out a school project together to strengthen awareness of one's own power and possibility to change one's environment.

Educational strategies that can increase the effectiveness of teaching about climate change:

- **interdisciplinary teaching** – climate change is a complex and large-scale issue that needs to be viewed from different perspectives (e.g., including historical, economic, societal),
- **participatory learning** – more pupil participation, for example in choosing the topic of the project,
- **research and project-based learning**,
- **locally anchored learning**,
- **school-wide approach**.

EE SUPPORT ELEMENTS

Basic Principles of Outdoor Learning

Anything taught outdoors can be considered outdoor learning. But we can also narrow the term to a long-term, regular and conceptually designed teaching process. According to the creators of the concept of long-term and regular Outdoor Learning, there is always something and somewhere to discover. The outdoor environment allows pupils to move, use all their senses, see the world in context, learn across subjects, and develop communication and relationships.

THE MAIN PRINCIPLES OF THE CONCEPT ARE:

- **thoughtfulness** – targeted inclusion in annual or thematic lesson plans, timing of the plans to the most appropriate time, mapping the environment around

the school and making an overview of places that can be used for outdoor learning and for the fulfilment of individual themes, mapping of risks,

- **regularity** – outdoor learning throughout the year, a combination of shorter and longer stays in relation to the learning objective, building routines and routines, following rules and increasing concentration,
- **curricular and organisational coherence with the school curriculum** – structured teaching linked to the curriculum, emphasis on the meaningfulness of learning themes and interconnectedness with the real world,
- **long-term** – opportunity for a more holistic understanding of the world, multilayered exploration and tracking of changes in places over time, opportunity to develop key competencies (problem-solving, action-oriented, exploratory or entrepreneurial).

Educators practising Outdoor Learning agree that the beginnings of outdoor learning are certainly not easy for both students and educators. All have to get used to the high level of stimulation of the outdoor environment. It is also advisable to combine outdoor learning with more systematically structured classroom lessons. At the same time, however, educators confirm that pupils outdoors show a greater level of engagement, which has a positive impact on the effectiveness of the learning process.

Lipka has long helped educators and schools develop a more holistic approach to outdoor learning. For more information, please visit **www.venkovnivyuka.cz**.

Development continuum of responsible behaviour

It is a conceptual elaboration of the pupils' path to a more responsible attitude towards nature and people. Lipka created the document together with other environmentally oriented organizations (SEVER, TEREZA, Variants – People in Need, NaZemi) and universities (Masaryk University, University of Hradec Králové).



Acting responsibly towards nature and people means making a conscious effort to improve the quality of the environment and quality of life, both locally and globally. A learner who is equipped with the competence to do so possesses the knowledge, skills and attitudes to act in a consciously responsible way towards nature and people in ordinary and complex situations, both in the present and in future civic life.

The continuum builds on the **Recommended and Expected Outcomes of the cross-cutting theme Environmental Education** and the **Objectives and Indicators of Environmental Education**. It is divided into six areas:

- **perceptiveness,**
- **a relationship to place,**

- **systems and events,**
- **research skills,**
- **problem solving,**
- **readiness to act**.

Each area is divided into components, lines and objectives. The objectives are elaborated in three levels according to the level of advancement. For example, the Systems and Processes area is divided into five components, in which the pupil can:

- **understand the concept of system,**
- **understand interconnectedness and interdependence,**
- **understand the meaning of diversity,**
- **understand change and development,**
- **accept uncertainty and unpredictability.**

The continuum serves as a sophisticated tool for educators with an overview of the knowledge, skill and attitudinal objectives towards which lessons should be directed. The continuum builds not only on sensitivity to the environment, knowledge and understanding of events and processes, but also on the very important ability to solve problems and actively participate in their solution.

Details and a downloadable document can be found at www.odpovednejednani.cz as well as specific activities for the Outdoor Education lessons at **www.venkovnivyuka.cz/kontinuum-odpovedneho-jednani**.

INTERNATIONAL EE FRAMEWORK

UN Sustainable Development Goals

The Member States of the United Nations (UN) have agreed on the formulation of 17 Sustainable Development Goals (SDGs) to be achieved through the development agenda between 2015 and 2030. The agenda is based on facts and resources that you can use in your teaching, for example, nearly one in three people on earth do not have regular access to enough food and one in ten suffer from hunger; 25 % of primary schools in the world do not have adequate electricity and drinking water; more than 85 % of the Earth's wetlands have disappeared in the last 300 years; 99 % of people living in cities breathe polluted air; 17 % of the food produced is wasted or spoiled; more than 17 million tonnes of plastic will enter the world's oceans in 2021; 1 million animal and plant species are threatened with extinction.

DEFINED SDGS OBJECTIVES:

1. Eradicate poverty in all its forms worldwide.
2. Eradicate hunger, achieve food security and improved nutrition, promote sustainable agriculture.
3. Ensure healthy lives and improve the quality of life for all at all ages.
4. Ensure equal access to inclusive and quality education and promote lifelong learning for all.
5. Achieve gender equality and empower all women and girls.
6. Ensure access to and sustainable management of water and sanitation for all.
7. Ensure access to affordable, reliable, sustainable and modern energy sources for all.
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and innovation.
10. Reduce inequalities within and between countries.
11. Create inclusive, safe, resilient and sustainable cities and communities.
12. Ensure sustainable consumption and production.
13. Take urgent action to combat climate change and manage its impacts.
14. Protect and sustainably use oceans, seas and marine resources to ensure sustainable development.
15. Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and subsequently reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies, ensure fair access for all and develop effective, accountable and inclusive institutions at all levels.
17. Revitalise the Global Partnership for Sustainable Development and strengthen the means for its implementation.

To work with pupils, we recommend a comprehensive publication with elaborated objectives, which can be found on the website **www.osn.cz/wp-content/uploads/2022/05/sdgs_pro_deti_4-1.pdf**.

GreenComp: European Competence Framework for Sustainability

In the wake of the Green Deal for Europe, the European Union has put together a set of sustainability competitions. We see a strong link not only with the framework of competences (EntreComp), but also with the framework of digital competences (DigComp) and the framework for key personal and social competences for learning (LifeComp).

GreenComp consists of 12 competencies divided into four areas.

1. Understanding and reinforcing the values of sustainability:

- valuing sustainability, including assessing alignment with personal values,
- promoting equity for current and future generations,
- respecting and supporting nature.

2. Accepting the complexity and intricacy of the sustainability field:

- system thinking and approaching sustainability from different sides and contexts,
- critical thinking and consideration of information and arguments,
- framing the issue in terms of social, temporal and geographical perspectives.

3. Imagining a sustainable future:

- ability to create visions and develop alternative scenarios including steps to achieve a more sustainable future,
- adaptability, coping with challenges and change in complex and ambiguous situations
- exploratory thinking, including using creativity and experimenting with new ideas or methods.

4. Acting for sustainability:

- demanding effective policy decisions for sustainability,
- collective action, i.e. working with the environment for change,
- individual initiative, i.e. being aware of one's own potential for sustainability and actively contributing to improving the situation.

GreenComp builds on a set of skills ranging from technical to soft skills that help develop both more sustainable ways of farming and green economy and an overall environmentally friendly way of life. GreenComp consists of 12 competences divided into four areas.

MINOR METHODOLOGICAL SUGGESTION

FORESTRIUM

A simulation game focused on more **gentle and sustainable forest management**. Groups of pupils or individuals are given an area that has a similar species representation and condition as an average agricultural forest. Their goal is to move the forest towards a more stable and resilient state, i.e. closer to nature, while at the same time thriving ecologically. The game also reflects current climate change and its impacts.

The non-profit organisation FSC ČR is behind the game and runs the website **www.myslinalesy.cz/hra-lesaria/**, where you can find an online version of the game. Lipka, in cooperation with the authors of the game, transformed the online version into a board game for four players. It is offered by Lipka – Rychta branch in the form of a one-day educational programme.

RESEARCH

Research-oriented teaching promotes the natural curiosity of pupils. A large part of 'classical' teaching is built on the teacher's transmission of information and the pupils' reception of it. In the course of exploration, the roles are different. **The pupil (alone or in a group) sets up the research question and the research procedure, carries it out and finally evaluates it**. The educator is here in the role of coach and advisor. The degree of openness to research is up to the teacher. The topic of research in a case study can be a specific species or genus of organism (e.g., a locust), a broader group (annelids), an entire class (insects), and so on. Research can also be built habitat-wise (meadow), physiologically (mode of locomotion, vocal expressions) and so on according to the needs of our teaching. Explorations can be used as motivation and input to a particular topic, or conversely to summarise the learning and extend it in an individualised way according to the interests of each pupil. Exploration can be done in any subject or subject area.

The research can be divided into individual parts and implemented separately in individual lessons or a whole research day can be prepared for the pupils.

The research process:

1. motivation, topic selection, questioning and selection of a specific research question,
2. formulation of the hypothesis,
3. planning the procedure and preparing the tools,
4. actual research, exploration, observation, conducting the experiment,
5. careful recording of data,
6. data analysis,
7. returning to the hypothesis, looking for connections and formulating a conclusion,
8. presenting the results to others,
9. asking new questions,
10. reflecting on the process.

A FEW PRACTICAL TIPS:

- When choosing a topic and asking questions, it is necessary not to suppress ideas, to let everyone who wants to express themselves speak.
- If students are shy about asking questions, working in small groups or creating a mind map on a defined topic can help.
- It is better to start research questions with what, when, where, how long, how far..., finding answers to questions starting with why is usually much more complicated.
- Several rules govern the formation of a hypothesis: it must be unambiguous and unambiguously defined, verifiable, measurable, generalizable, safe to test (for humans and the organisms involved), and refutable (not describing obvious facts).
- Not confirming a hypothesis is okay, in scientific research scientists try to disprove the hypothesis, not confirm it, for students disproving the hypothesis often leads to a wow effect.
- You need to carefully write down and think through your research procedure and the necessary tools so that you have everything you need with you in the field.
- Some of the tools can be made as part of the learning process, such as an insect net made from a 'reusable vegetable bag', part of a broom handle and strong wire.
- When processing the results, it is ideal to use not only the data itself, but also its more visually understandable interpretation, such as graphs, maps or illustrations.

The variety of questions and investigations is often surprising, as is the level of student engagement in the research.

EXAMPLE OF A COHERENT METHODOLOGICAL APPROACH

ECO-SCHOOL

Eco-School is the most widely used international programme focusing on sustainability and environmental responsibility. School teams of pupils, teachers and other stakeholders analyse the current situation, plan and implement changes, i.e. actively improve the school environment and its surroundings. Eco-school is not

just about reducing waste or saving energy. It is a philosophy that provides young people with the motivation and strength to become active agents of change and protectors of the environment and the world. Each Eco-School becomes part of a global movement working in more than 60 countries around the world. This gives children and teachers the opportunity to learn about other cultures and approaches to life. Eco-Schools therefore shape not only ecologically educated but also culturally and socially aware people.

Becoming an Eco-School means taking seven following steps:

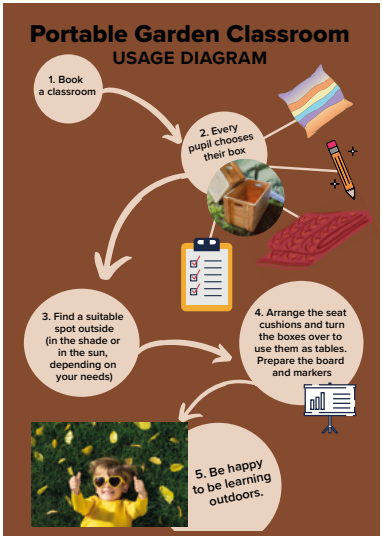
- start an eco-team of children and adults,
- explore the school and find out what works and doesn't work,
- create a plan to improve the environment,
- monitor and evaluate what is and isn't working,
- work with and inform others,
- educate oneself on Eco-School topics,
- create an eco-code summarising the school's values.

For more information about the programme and examples of good practice, visit **www.ekoskola.cz**.

SPECIFIC EXAMPLES FROM SCHOOL TEACHING

PORTABLE OUTDOOR CLASSROOM

The members of the **Pohořelice Elementary School** Eco Team decided to facilitate outdoor education. They assembled sets of wooden boxes, seats, writing pads and other accessories that function as a portable outdoor classroom. Teachers only needs to reserve this equipment for a selected lesson and each student takes a box. At a place chosen by the teacher, the pupils put the seats on the floor, turn the boxes over and make writing tables. The pupils also used an old school blackboard to complete the equipment. The group can thus use any suitable space on the school grounds for teaching, depending on the current weather conditions.



SCHOOL COSMETICS COMPANY

Schoolchildren of the second grade of the **Židlochovice Primary School** founded a company for the production and sale of natural cosmetics. The project also included a project day for first grade pupils. The pupils produced cosmetics with leaflets with information about the environment and sold them at school events

PROJECT DAY AND SCHOOL-WIDE PROJECT TO INCREASE BIODIVERSITY

Students of the **Mikulov Grammar School and Secondary School** embarked on a big change in their surroundings. They have turned an unused school site into an area equipped with a workbench and seating furniture made from natural or recycled materials. They seeded and planted the area for honey bees, put up birdhouses, made and placed insect hotels, solved rainwater catchment, and added information about the causes and consequences of climate change. The high school students also ventured into the wider environment. They followed up on the work of the city's leadership and placed insect houses next to the newly planted grassland, along with interesting information about the life and importance of solitary bees. The pupils managed to establish good cooperation with the Faculty of Horticulture at Mendel University in Lednice and placed one of the houses in the Chateau Herb Garden in nearby Valtice.

More suggestions and inspiration from implemented projects:



SOURCES AND INSPIRATIONAL LINKS

KRAJHANZL, Jan, CHABADA, Tomáš, SVOBODOVÁ, Renata, KÁCHA, Ondřej, VINTR, Jáchym, BECKOVÁ, Adéla, et al. České klima 2021. [online]. 2021

www.clovekvtisni.cz/co-delame/vzdelavaci-program-varianty/kurzy-pro-ucitele/klimaticka-zmena-online-kurz-pro-pedagogy-106c – online course for educators – includes important background material, explanations of climate change and methodological suggestions for teaching

www.ucimoklimatu.cz/metodiky/publikace/ – Climate change- what about us? Free to download

www.venkovnivyuka.cz/ – Lipka methodological portal for regular outdoor teaching

www.ucimesevenku.cz/ – tips for outdoor teaching, webinars and publications

www.jdeteven.cz/cz – ideas for outdoor activities with children

www.ucimoklimatu.cz/ – methodological portal for teachers with prepared lessons on climate education

www.faktaoklimatu.cz/ – easy-to-understand facts about climate change based on science

www.intersucho.cz/ – comprehensive data on the current state of drought and its environmental impacts

www.klimatickazmena.cz/cs/ – a guide to climate change

www.svetovaskola.cz/ – World School on Global Issues project website

www.veronica.cz/publikace-ke-stazeni?i=110 – methodological material for teachers on climate protection from the Veronica Foundation

www.clovekvtisni.cz/co-delame/vzdelavaci-program-varianty/vyukove-lekce/valky-z-tepla-50le – War of Heat simulation game

www.ekocentrumkoniklec.cz/adaptopolis/ – card game Adaptopolis on adaptation and mitigation measures

www.adaptacesidel.cz/doskol/aktivity/ – interesting experiments and research activities to learn about the potential risks of climate change

www.skolniles.cz – My Forest programme including complete methodology

www.adapterraawards.cz/ – inspiration and specific projects from the Adapterra Award

www.osn.cz/osn/hlavni-temata/cile-udrzitelneho-rozvoje-sdgs/ – UN Sustainable Development Goals

www.myslinalesy.cz/hra-lesaria/ – a simulation game about forestry

GLOSSARY

Entrepreneurship education (EE)

Entrepreneurship education connects education with practical life, blurring the boundaries between education, work and active citizenship; it trains soft skills, applicable across all disciplines (also called soft skills). The aim of EE is to develop the competences needed for a sustainable active life as a school leaver in the rapidly changing conditions of civic, professional and personal life.

Developmental continuum of key competences for entrepreneurship

The document, prepared by Lipka in cooperation with the Regional Council for Entrepreneurship, can be an inspiring guide for pe- dagogues on how to comprehensively approach entrepreneurship education at school. You can find it freely downloadable at **www.lipka.cz/vyvojove-kontinuum**.

Education for entrepreneurship and environmental education

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