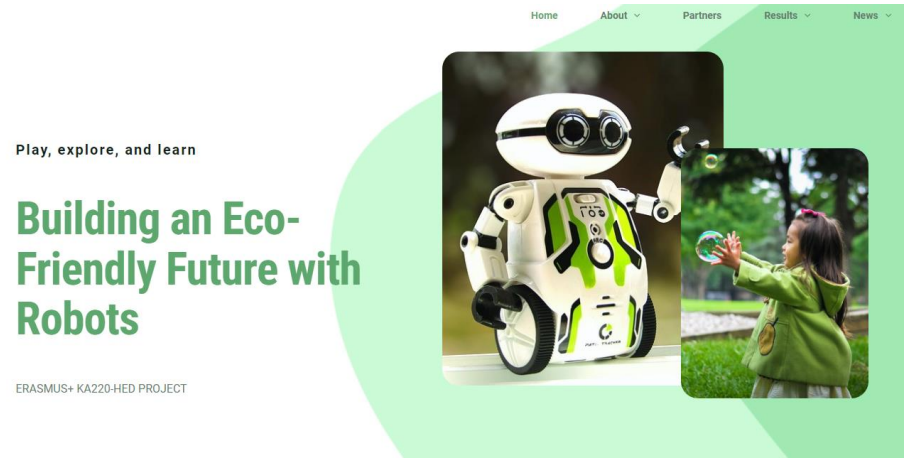
ISSUE 1
October 2024

NEWSLETTER

2023-1-LV01-KA220-HED-000157623

Building an Eco-Friendly Future with Robots



https://www.greencodeproject.com/

Welcome to the first newsletter of our Erasmus+ project "Building an Eco-Friendly Future with Robots"! In this issue, we want to update you on how the project has progressed over the past year, what results have been achieved and what more is planned!

The Erasmus+ project GREENCODE "Building an Eco-Friendly Future with Robots" started on 1 September 2023.

The project will continue until 31 August 2025 and its vision is to develop teaching materials and raise awareness of the environment, foster algorithmic thinking through educational robotics activities, and promote an inquiry-based learning model in preschool education. This intends to increase the skills and training of preschool teachers to encourage children's interest in the future of the world and foster environmental awareness.

The project aims to improve the capacity of the education sector by providing high quality environmental education and teaching algorithmic thinking through educational robotics at preschool level in all partner countries.

Funded by the European Union

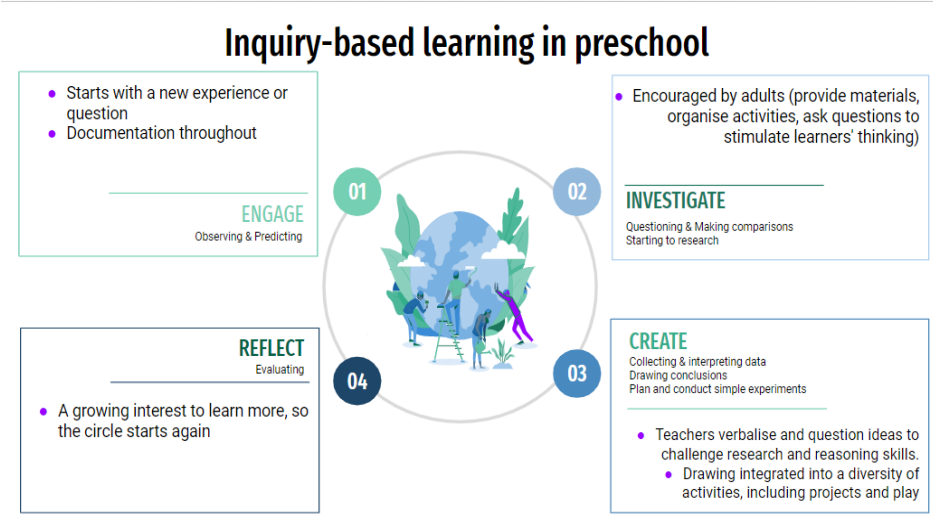
Partners from seven different countries - **University of Latvia, University of Mannheim (Germany), Scuola di Robotica (Italy), Early Years ROI (Ireland), Politecnico de Viseu (Portugal), Educational Technology company Mellis (Turkey), and University of Rijeka (Croatia)** - are participating in the project.

The results of the GREENCODE project will be:

- **A Digital Handbook to** support an inquiry-based learning model as an eco-friendly learning practice using simple coding and educational robotics activities in early childhood.

- **Higher Education Curriculum** for preschool education departments.

- **A Toolkit** including lesson plans, an activity book and video tutorials.



Inquiry-based learning in preschool (IBL)
Image from Project Greencode "Higher Education CURRICULUM"

What is Inquiry-based learning?

Preschool education lays the foundations for knowledge, skills, competences and attitudes for all further levels of education. Asking questions, seeking answers, experimenting, comparing, analysing, discussing, debating, reflecting are essential skills for every child living in a fast-paced world. The rapid development of science and technology requires people who are equipped with some basic research skills. Inquiry-based learning (IBL) is a learning model that offers the opportunity to develop these skills from preschool onwards. Children are natural explorers - they want to ask questions, find out more, explore and experiment. Offering learners a variety of activities that allow them to explore materials and search for answers can develop a deeper interest in different topics, as well as a willingness and ability to ask questions.

If we look at the skills mentioned above and look at the skills that can be developed through educational robotics activities, we can see that they are very similar, as educational robotics also requires problem solving, asking questions and looking for answers, as well as providing opportunities to experiment, compare, analyse, discuss and reflect at the end of the journey to find solutions.

Educational robotics is a powerful tool for integrating coding activities into a wide range of topics, including those related to nature and the environment.

It can therefore be said that the IBL model can serve as an intersection point between natural sciences and educational robotics.

IBL fosters thinking skills, which is a very important skill set at the preschool age. Often, promoting thinking skills requires a series of well-formulated questions, asked in the right environment and at the right time.

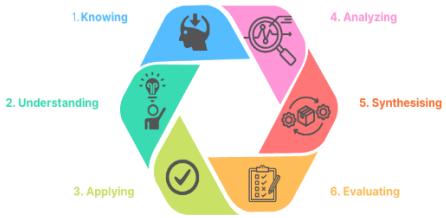


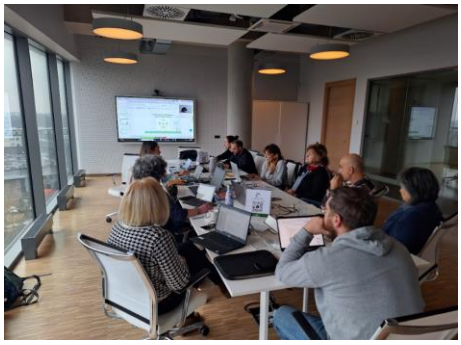
Image from Project Greencode "Higher Education CURRICULUM"

Asking simple questions in an effective way helps stimulate children's thinking and makes learning more interesting. Material from the Council for Exceptional Children presents six important thinking skills for children: knowing, understanding, applying, analysing, synthesising and evaluating.

TNM in Riga

The Scientific Institute of Pedagogy is the lead partner of the Erasmus+ project GREENCODE, therefore the partners were invited to Latvia for the first Transnational meeting.

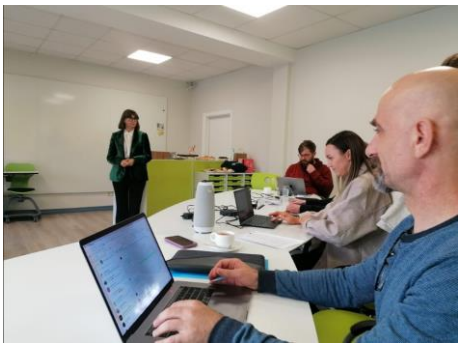
In addition to regular online meetings, the first face-to-face meeting of the project partners took place at the end of January this year in Riga, at the University of Latvia. The project partners discussed together the next steps and tasks to successfully develop a higher education curriculum for future preschool teachers, as well as a handbook, lesson plans, activity book, video tutorials and other materials related to algorithmic thinking, educational robotics, environmental awareness and preschool education.



During the meeting, the partners also developed questionnaires and a detailed plan for the teachers' workshop and agreed on a template and structure for the development of teaching materials in a common style and approach. The partners reviewed, discussed and adjusted the project publicity plan, the objectives of the development of materials, the distribution of tasks and the development phases.

During the meeting in Latvia, the project partners also visited the Faculty of Education Sciences and Psychology of the University of Latvia, the Academic Centre of the University of Latvia and one of the preschool educational institutions in Riga - "Ligzdiņa".

At the Faculty of Education Sciences and Psychology of the University of Latvia the project partners were welcomed by the Dean of the Faculty prof. Linda Daniela.



Over the duration of the meeting, the participants had the opportunity to take a look at the faculty's wide range of technologies used in the training of future teachers, such as 3D printers, an educational robotics room, a virtual reality laboratory, etc.

On one of the days, the project partners were invited to explore the Academic Centre of the University of Latvia (known abroad as "Campus"), where they had the opportunity to learn about the modern study and research environment offered to the University community (students and workers) by touring both the House of Nature and the House of Science, as well as seeing the construction of the future House of Letters.

In order to get an insight into the preschool environment in Latvia, its technical support, working rhythm, etc., the project partners had the opportunity to visit the Riga preschool "Ligzdiņa", where its head Laima Zandarta presented the institution's experience in relation to the topics planned in the project materials - the use of educational robotics in the daily learning process, the inquiry-based learning model in preschools, and other aspects of preschool education in Latvia.

The visit to the preschool came to an end with a discussion where partners and representatives of the educational institution had the opportunity to discuss how best to develop the materials foreseen in the project results to make them valuable and meaningful for future and current teachers.

The Transnational meeting closed with a warm goodbye, a photo taken together (showing that the partners from Mellis were present remotely) and certificate distribution

Workshops

In February 2024, a focus group workshop with preschool teachers, heads and experts took place in all partner countries. The aim of the workshop was to gather information on recommendations for the titles and structure of the curriculum modules. In addition, project-related topics were discussed, such as teachers' knowledge of eco-friendly practices today, how well they know educational robotics, inquiry-based learning and interdisciplinary teaching methods.

The selection criteria for the participants included:

- Teachers who are passionate about environmental protection and the use of robotics.

- ICT teachers who have previously had coding training or are continuing these educational activities in preschools.

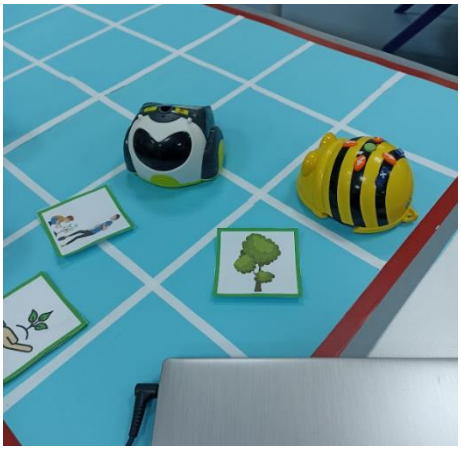
- Preschool teachers with a national or international training certificate in coding education.

- Teachers from different cultures and languages and with different levels of experience and skills in environmental protection/robotics.

Workshop in Latvia

The workshop was held in a focus group discussion format, both in person and remotely. After the workshops, key facts, findings and opinions were summarised in each country and considered in the next stages of the project.

During the workshop, teachers were also given the opportunity to learn about practical activities with educational robots that can be used in their daily work.

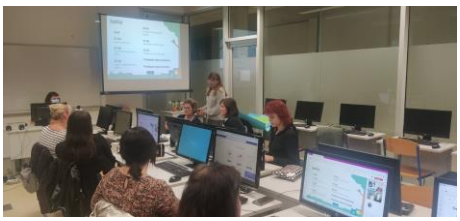


Workshop in Turkey

The insights gathered were many and varied. But many of the findings were common across countries. For example, current awareness and practice of environmentally friendly teaching methods among teachers is quite high. They include in their lessons with children a wide variety of topics related to environmental protection and respect for the environment, e.g. waste sorting and recycling, reuse of materials, developing respectful and healthy daily habits towards the environment around them and the planet, understanding the rational use of water and electricity, growing plants, etc.

Workshop in Ireland

It was also mentioned in several countries that it is important to keep the connection with nature very strong by using natural materials, by going out into nature, in a real environment, rather than just using representations of natural realities.



Workshop in Croatia

It is worth adding that teachers in many countries are already using interdisciplinary teaching approaches and are also very interested in inquiry-based learning models and want to learn more about teaching about environmental issues.

In several countries, however, educators admit that experience with educational robots is limited. Interest in including educational robotics activities in their lessons varies widely (opinions and enthusiasm can differ even within the same country or educational institution), but after hands-on experience with educational robots, interest is raised in both children and adults.

In summary, environmental awareness is an important topic in preschool education in all countries. It is also very clear that a strong emphasis when "talking and thinking about nature" needs to be placed on real nature, outdoor activities, exploring and studying nature. In countries where a large proportion of time is spent indoors, it is recognised that raising this topic during indoor activities is also very important.

Handbook & Curriculum

Creating learning activities, real-life scenarios and stories that integrate environmental protection with educational robotics and coding is a fun and effective way to bring globally relevant topics to young children.

To help preservice preschool teachers develop the skills and competences they need to use digital technologies, including robotics, effectively in their teaching practice in preschool education, the aim was to develop the following materials for this project - the Higher Education Curriculum and the Digital Handbook.

By August 2024, the project partners had worked closely together to develop the first project outputs - a Higher Education Curriculum for preschool departments and a Digital Handbook on an inquiry-based learning model as an eco-friendly learning practice using simple coding and educational robotics activities in early childhood.

The developed higher education curriculum for preschool education will be used in partner universities' study programmes. The curriculum can also be used by educational institutions to help their existing preschool teachers.

Key objectives of the programme:

- To support preschool teachers to become aware of environmentally friendly practices in preschools.

- to enable preschool teachers to gain an understanding of the use of educational robotics.

- to offer the opportunity to acquire skills presented by current environmental challenges.

- provide high quality environmental education and teaching of algorithmic thinking at higher education level in preschool departments.

The higher education curriculum for preschool departments consists of the following topics:

1. **Inquiry Based Learning**
2. **Methods of supporting implementation of IBL in ECE**
3. **The importance of outdoor and indoor activities**
4. **Basic hands-on Robotics and Coding Activities**
5. **The role of evaluation and documentation in ECE in the IBL process**
6. **Inquiry-based learning approach guide step by step (samples)**

The digital handbook on an inquiry-based learning model as an eco-friendly learning practice using simple coding and educational robotics activities in early childhood was developed based on insights from the focus group workshops.

The Digital Handbook will contain the following chapters:

1. **Increasing environmental awareness starting from the early years**
2. **Good practice on environmental awareness**
3. **Eco-friendly practices in early childhood education**
4. **Educational robotics and eco-friendly attitudes and behaviours**

All materials developed, data collected and news from the GREENCODE project are also published on the project website: https://www.greencodeproject.com/
Follow the project on Facebook: GreenCode Project

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.