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NEWSLETTER

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Building an Eco-Friendly Future with Robots

Welcome to the second newsletter of our Erasmus+ project "Building an Eco-Friendly Future with Robots"! In this issue, we want to update you on our roundtable meetings, what results have been achieved at these meetings and what more is planned!

The GREENCODE roundtable meetings were held as part of the project "Building an Eco-Friendly Future with Robots" to explore innovative educational strategies that integrate environmental awareness, robotics, and inquiry-based learning.

The roundtable meetings, held locally and face-to-face in the project partners' countries, created dynamic environments that allowed participants to bring forward diverse perspectives on implementing the educational model developed within the GREENCODE project.

The discussions focused on challenges and expectations related to the use of educational robots, approaches to environmental education, and how they could be effectively integrated through an inquiry-based learning approach.

These meetings facilitated insightful and thought-provoking discussions, leading to valuable contributions. Additionally, they provided essential data for developing the content of the activity book and creating the card game and the worksheets.

Roundtable Meetings

We invite you to discover the valuable insights and perspectives shared during our roundtable meetings. These discussions explored insightful educational approaches and practical strategies for enhancing learning experiences.

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TNM in Rijeka

In October 2024, all the project partners met in Rijeka, Croatia, to discuss the project activities. The meeting included exploring a visit to one of the kindergartens and the Children's House in Rijeka

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Roundtable Meeting in Riga

02.10.2024 Partners of the University of Latvia hosted a roundtable meeting in one of Latvia's pre-schools - Riga pre-school educational institution "Ligzdiņa".

The meeting was attended by 17 staff members, including both teachers and administration.

The meeting focused on topics related to the GREENCODE Curriculum, eco-friendly practices today, educational robots, inquiry-based learning and interdisciplinary teaching methods.

During the meeting, teachers provided very valuable feedback, opinions and insights into the daily learning process of preschool education.

Here are just some of the highlights:

- Educational robotics is not used very often due to a lack of materials, and teachers feel that these activities are very limited and that students get bored of it and do not come up with new ideas as they learn its functions.

Teachers overall lack a variety of ideas and materials, as well as a concrete background and benefits from tasks involving an educational robot.

- Teachers and the head of the institution say that it is very difficult for teachers who have just come to teaching or who are still students to understand how to structure the lesson in order to achieve the objectives, so it is very important to offer a full lesson plan with concrete activities and concrete topics for the future teachers.

- Teachers point out that it is very important to provide space and time in the learning process for students to engage in conversations, ask questions and reflect on their work.
At the same time, teachers emphasised that a new teacher, who has not yet gained teaching experience, does not really know how to improvise creatively in the teaching process, following the learner's questions or adapting the teaching process to the learner's interests/needs. Therefore, specific guidance for the new teacher is very important.

Roundtable Meeting in Mannheim

The RTM in Mannheim offered valuable insights from experts in ICT and ECE. The participants showed great interest in the project and underlined the importance of algorithmic thinking and basic computer skills for young children. The discussion was focused on the different competence levels of young children. While robots are present in the everyday life of children, robots are even more popular as characters in TV series, movies and games.

- During the meeting, numerous examples of everyday robots were listed, such as vacuum cleaning robots, mowing robots or robots as part of industrial construction. The first two kinds of robots are especially fitting examples, because they are used for similar tasks and they operate in a similar way.

- Connecting robots to environmental practices at first seems like an oxymoron, because robots are artificial or experienced as unnatural. On second glance, the aforementioned mowing robots can be interpreted as grazing animals, which shorten plants and keep the cuttings in their belly.
Some of the participants underlined social equality as an important aspect of ECE and that focusing on household robots carries the risk of marginalizing children coming from less privileged families.

- The basic concept of the BeeBot was chosen as a starting point for the further development of educational activities with robots. The bee is an animal known to almost all children, it plays an important role for our ecosystem and it can be found in many countries all over the world.

Roundtable Meeting in Viseu

IPV invited several participants to the roundtable on GreenCode on 26th September 2024. In total, 18 students from the Masters Degree in Early Childhood and Primary Education, six Early Childhood Education teachers, and two researchers joined Maria and Sandra to discuss educational robotics, Environmental Education, and challenges to practice from Inquiry-Based Learning. The different experiences and perspectives were very enriching.

The agreement about the relevance of Environmental Education gave way to debates on how to best introduce it in Early

Childhood Education. Generally established practices like recycling were perceived as insufficient to achieve the necessary connection to nature. Also, the identification of environmental problems and their complexity was highlighted.

Regarding educational robotics, students had many experiences from their practicum in Primary Education the year before and became experts together with the researcher on Digital Environments for Children. This contrasted with the overall inexperience of the teachers. Still, good points were raised in the groups regarding opening up activities with robots to children's creativity and exploration.

Finally, participants were very enthusiastic about the possibility of creating a card game that combined their concerns. The Arca dos Contos, Story Cubes, and the Fabula Deck for Kids were shared and used. The participants agreed they provided a good basis for a game for children to introduce environmental problems and promote imagination and problem-solving. One of the participants drew some possible cards starting the creative process on the spot.
In conclusion, the integration of environmental education, educational robotics and inquiry-based learning was deemed challenging but engaging.

Roundtable Meeting in Rijeka

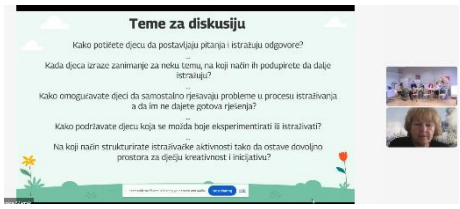
UNIRI organised a roundtable meeting at the Faculty of Teacher Education in Rijeka on 7 October 2024 as part of the GREENCODE project. This event brought together 5 participants: preschool teachers and experts in preschool pedagogy/IBL as well as ICT teachers who used to teach coding or continued these educational activities in preschools.

- The main points of discussion were to identify ways to encourage children's curiosity, support independent problem solving and encourage creativity in research activities.

It is about strategies to help reluctant learners to experiment, integrating robotics into ecological projects and using simple robots to teach programming and logical thinking.

An important focus is the question of whether technology really promotes inquiry-based learning. Finally, open questions invite reflection on the benefits and challenges of using digital tools in environmental education for children.

- The meeting focused on ideas and contributions to projects that last longer than short daily activities, without having to worry if not all the children in the group are interested in the project, they will come around; making the children's contribution to the project visible, letting the children lead the investigation and creating "tasks" for robots, using a holistic approach and aligning the areas with the national curriculum.



- Preschool teachers noted that integrating eco-friendly practices and educational robots into the preschool classroom is difficult due to their lack of knowledge in the field of robotics, while ICT experts stated that they had not previously integrated eco-friendly practices into the educational robots.

Roundtable Meeting in Monaghan

On 22 October 2024 Early Years ROI hosted the GREENCODE Roundtable event in the National Childcare Network (NCN) in Monaghan, Ireland with 8 participants. The purpose of the meeting was to share information on the 3 project results and also to gather new ideas and examples of practical eco-friendly activities that could supplement the GREENCODE Toolkit. A particular focus was on the role of evaluation and documentation in ECE alongside the Inquiry Based Learning (IBL) Framework.

There was a lot of lively debate and discussion, and the teachers provided very useful feedback to the GREENCODE Team.

Here are some of their key reflections

- Teachers reflected that they would use parts of IBL in their preschool curriculum, however they felt that it needed to be intentional as a whole school approach in order to integrate it.

- They also commented that children should be given the experience of using a robot and provided with opportunities to use practical materials such as loose parts/lego/blocks/tinkering activities when combining IBL and educational robotics.

- Teachers currently utilise observations and learning stories for documentation. This includes the use of photographs, post it notes, anecdotal observations, and artwork. Learning stories serve as the primary documentation tool in these settings, with recorded interests being reflected in the learning stories.

- Staff noted that they consistently encourage children to assess their learning through open-ended questions, although this is not always documented. They also organise workshops for parents to help them extend their children's learning at home.

In most preschools in Ireland teachers do not currently use robots and have very little knowledge and experience on how to use them. However, they thought that with the right training they could learn to use educational robotics as part of the preschool curriculum.

They also discussed the importance of:

- using materials available to them within their own environments

- using a whole centre approach with good communication between all adults and then to children.

- being aware of the eco -friendly processes that are available in the local community and vice versa and so becoming more visible in the local community.

Roundtable Meeting in Çanakkale

MELLIS organised a roundtable meeting on October 8, 2024, at ÇABAÇAM Preschool in Çanakkale, Turkey within the scope of the project GREENCODE. This event brought together 10 participants, including preschool teachers, curriculum developers, representatives from environmental NGOs, and university students, to discuss innovative strategies for teaching sustainability and environmental awareness through robotics and inquiry-based learning.

- The meeting focused on methods to teach reusing, reducing, and recycling to children in early childhood education. Participants shared various creative approaches, such as gamifying waste separation, crafting toys from recycled materials, and conducting hands-on experiments to promote critical thinking and algorithmic thinking skills. Teachers also emphasized engaging parents to reinforce sustainable behaviours at home.

- Incorporating robotics into education was a key topic of discussion. Participants presented activities such as coding robots to sort waste, creating forest ambassador robots to explore outdoor spaces, and using unplugged methods to teach algorithmic thinking. These approaches aim to foster environmental consciousness in children while developing their problem-solving skills.

- The meeting concluded with practical insights and contributions to lesson planning for early childhood education, reinforcing the importance of blending inquiry-based learning with technology to prepare children for a sustainable future.

TNM in Rijeka

The On October 29-30, 2024, the GREENCODE Project team gathered in Rijeka to discuss project progress, evaluate roundtable meetings, and refine educational materials.

Key topics included integrating robotics into early childhood education, enhancing environmental awareness, and improving the curriculum and handbook through quality evaluations.

Partners highlighted the need for clear guidelines to help teachers combine ecology and robotics and emphasized the importance of parental involvement

The meeting also focused on developing lesson plans, a learning activity book, video tutorials, and a card game to support interactive learning.

The next transnational meeting will be held in May 2025 in Genoa, as the project continues to promote innovative and sustainable educational approaches.

All materials developed; data collected and news from the GREENCODE project are also published on the project website:
https://www.greencodeproject.com/
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