

Interactive Classroom Working Group: Personalising Learning

Spotlight on Basic robotics for 1st - 3rd grades

By Anneli Ruul, Class Teacher, Põltsamaa Ühisgümnaasium (Estonia)

Background

Põltsamaa Gymnasium is located in the very heart of Estonia, placed in a historic park of a small town, which was once the capital of the Kingdom of Livonia. We have a sustainable and innovative school, which is a secure and aesthetic learning environment that supports the development of each student, rewards the people for their trust and cooperation. In recent years, the school has been linked to the objectives of the new generation of digital learning materials and e - learning environments applications. From this school year we opened a new curricula for gymnasium students: cyber security. This unique curricula has been developed in cooperation with the Vocational Education Centre of Tartu, IT systems specialist in pre-vocational training curriculum.

Benefits of personalising learning for students and schools/teachers

Using robots in lessons opened students' eyes and many of them saw new opportunities for how and what they could do with them. A girl who had not previously been exposed to robotics came the next year and joined the robotics club.

- *During the process students functional reading and independent work abilities will grow; Everyone can learn according one's capabilities and in appropriate pace*
- *Robotics could be used as an integration between various subjects: manual activities, handicraft, nature science, reading.*

Showcasing: Basic robotics for 1st - 3rd grades

When it comes to basic robotics anyone can learn according to their capabilities, skills and knowledge. For the instructor it also gives an opportunity to guide the children according to their needs – give more difficult tasks to more advanced ones and simplified assignment for less capable children. By sheering our own practice we hope to benefit from other schools experiences.

How is theme demonstrated (in and out of school), and in which subjects/classes?

For the 1st -3rd graders we have integrated robotics into mother tongue (Estonian) lessons, crafts and nature science lessons. Robotics enthusiasts are involved with the robotics club after school. Lessons are conducted by 2 teachers: a class teacher and the teacher of robotics. After the lessons, students could prepare for the FIRSTLEGO League Jr. projects, guided by the class teacher. Kids' efforts were completed by the illustrated posters that were set up in the school hallways and under which participating classes presented their activities to their pairs.

Posters were seen also by our visiting Turkish teachers, who came to Põltsamaa under Erasmus+ cooperation project "Development of democracy and intercultural understanding through children's literature". Visiting teachers liked the idea so much that Turkey Ozel Altinyildiz Ilkokulu partner school also began to teach robotics in their school. Our poster project was also presented on the Junior FLL exhibition.

Most popular technology used in support of theme

- For construction of robots we used laptop computers and appropriate software, Lego WeDo robotics sets.
- Now I have gained an understanding about programming and I'm able to build robots myself. I learned how to teach children to work on the computer, I learned to supervise group work and project work.

What happens in a typical 1:1 teaching situation or class when personalising learning?

Anyone could continue its development from where they are situated in the moment without disturbing others. Class works towards a common goal and it is more united. The kids are working more closely to each other - cooperation between students has grown.

The children were fascinated by robots. On schooldays, when it was known that robots will be used during the classes, the kids were very excited throughout the day.

Teachers who started using robotics in their classes saw it as a good opportunity, some still remained hesitant. Parents were interested and supportive. The exhibition was visited by almost every parent.

Impact

There are more students working independently, with less teacher intervention. Students become responsible for the result of the work.

How has personalising learning contributed to innovation and change?

All of the components are in place: more collaborative learning, involvement of parents, digital skills, learning outside school, improved results, changes in the administration processes in the school and classroom.



"There are more students working independently, with less teacher intervention"

Anneli Ruul

About the author:

- **Expert:** Anneli Ruul, Class teacher
- **Põltsamaa Ühisgümnaasium 1st grade constructing a robot:**
<https://www.youtube.com/watch?v=7pyDccalQtM>
- **FLL Jr. website and pictures:** http://www.robotika.ee/fleesti/?page_id=1163
- **2015/16. FLL Jr. exhibition:** <http://avastajad.blogspot.com/2016/05/prugitarkus.html>