

Future Classroom Scenario - Trentino

Title: PEERobotics – Peer learning of programming while practicing a foreign language

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Relevant trend/s and school vision

Write the trend or trends the Scenario is intended to respond to, and whether they need to adapt to the future or embrace the future indicated by the trend. 1 or 2 trends is normally enough. What is your school vision towards these trends?

The scenario aims at responding to the following trends:

- Peer learning and tutoring as a method to develop problem solving, responsibility and self-assessment.
- Problem based learning and collaborative learning will be used extensively as the students gain knowledge and skills by working collaboratively to investigate and respond to an authentic challenge.
- Flipped classroom as a strategy to reverse the traditional learning environment.
- STEAM learning as an educational approach that addresses Science, Technology, Engineering and Mathematics as a whole strand of learning.
- BYOD as the students are allowed to bring their own devices.
- CLIL as a method to learn programming while practicing a foreign language.

What level of maturity is the scenario intended to achieve? This should be one level above the current level of maturity on the Future Classroom Maturity Model.

FROM: Current Future Classroom Maturity level	TO: Desired Future Classroom Maturity level
IC Strigno e Tesino: The assessment of maturity level for the group of students coming from the IC Strigno e Tesino School gives them a level 2 - Enrich.	IC Strigno e Tesino: We would like to reach, for the group of students coming from the IC Strigno e Tesino School, a level 3 - Enhance.
Istituto di Istruzione L.GUETTI: The assessment of maturity level for the group of students involved in the project gives them a level 2 - Enrich.	Istituto di Istruzione L.GUETTI: We aim at reaching, for the group of students involved in this project, at least a level 3 - Enhance.



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Learning Objectives, Skills and competencies

What are the main objectives? What skills will the learner develop and demonstrate within the scenario? (e.g. 21st Century Skills).

The main objective of this scenario is the peer learning regarding programming through a foreign language in order to develop ICT literacy and awareness in students. The students will collaborate on decision making, problem solving and implementing solutions using their own mobile devices; they should also communicate and think critically and laterally in solving possible difficulties they come across; they should also be able to learn from each other and tutor each other using their narrative thinking and digital storytelling skills. Teachers will be working with Third year Lower Secondary School students (13 year-old) and second year Upper Secondary School students (15 year-old). The younger students should teach older students how to program and build a LEGO Mindstorms EV3 robot.

Assessment of progress will take many forms:

- Observation (monitoring/tutoring) of their activity in and outside of the classroom;
- Evaluation of the teaching activity will be done by the older students (google form);
- Evaluation of the product (robot) will be done by the younger students (google form);
- All the students will publish a final report on the web sites of the schools, as a shared activity.

Learner's Role

What sort of activities will the learner be involved in? How will they progress in achieving their objectives?

Learners will be mainly working in groups to:

- Program and build a LEGO Mindstorms EV3 robot;
- Use their own devices to collect data and run experiments;
- Document (images, videos, narrative) the result and the process;
- Design and prepare evaluation questionnaires (both for peer education evaluation and for building and programming the robot);
- Prepare final reports in foreign language for websites.

Teacher's Role

What will the teacher need to do to guide and support the learning, and ensure the learners meets their objectives?

The teacher will set out the project first and then closely monitor the students during group-work, giving feedback and guidance when necessary. Her/his help could focus on a linguistic



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level (accuracy and communicative achievement in their texts) and on an organizational level (phases, timing, pace,).

Tools and Resources

What resources, particularly technologies, will be required? How will they be used? Remember to refer back to the Future Classroom Maturity Model and the level of maturity you want to achieve.

LEGO MINDSTORMS EV3 kits and programming tools; interactive whiteboard for intro session (presentation of scenario); computers for programming and for sharing/developing the final report; G Suite to power teamwork; students will be working with their mobile devices (phones, tablets, digital cameras and video equipment) in all the phases of the project.

Future Classroom Scenario Narrative

The idea of this scenario was first suggested during our workshop in Brussels in May 2017 and teachers liked the idea of using CLIL and peer learning to teach programming. The project also favours collaboration between students, as the third year Lower Secondary School students (13 year-old) will teach second year Upper Secondary School students (15 year-old) how to program and build a LEGO Mindstorms EV3 robot.

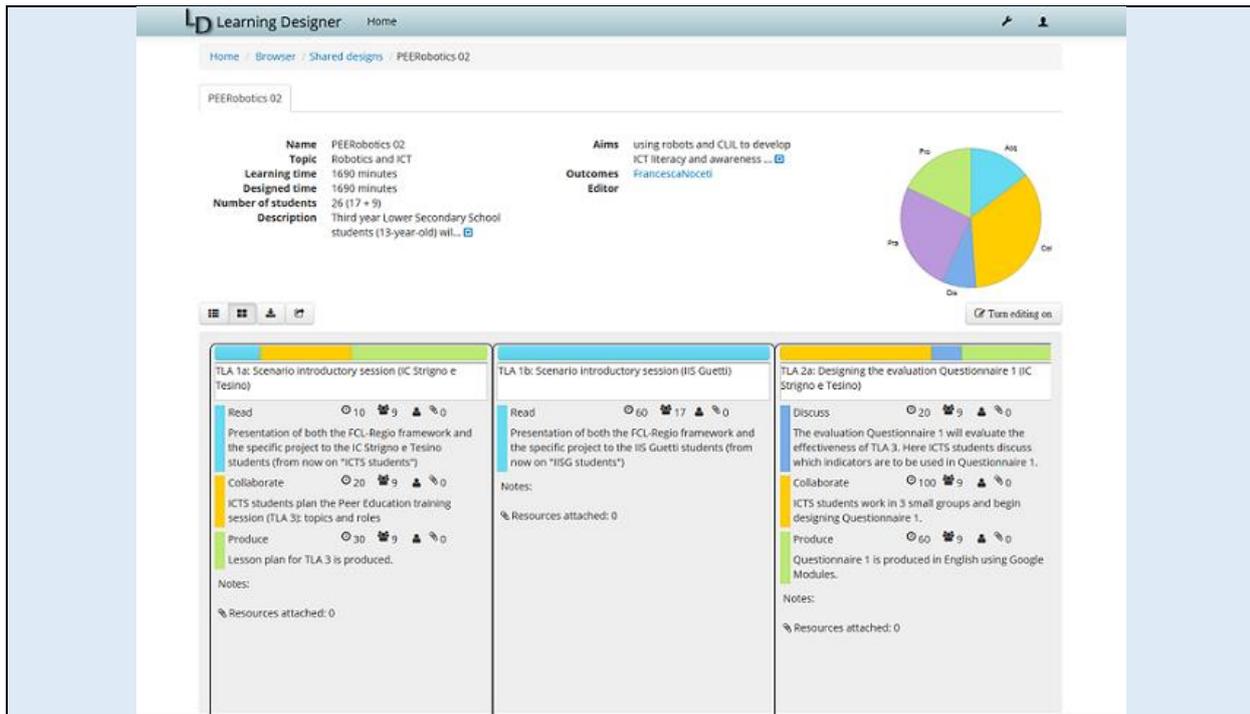
Subsequently, the older students will produce a robot according to their creativity. Finally, all students will get together again and the older students will show their product to the younger ones, who will document (images, videos, narrative) the result and the process. The final report will be assembled as a shared activity by all students and published on the web sites of the schools. An English version of the report will be made by the older students.

Evaluation of the teaching activity will be done by the older students, whereas evaluation of the product (robot) will be done by the younger students. Questionnaires and report will be produced in English.

<https://v.gd/mGEpYW>



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The screenshot shows the Learning Designer interface for a course titled "PEERobotics 02". The course details include:

- Name:** PEERobotics 02
- Topic:** Robotics and ICT
- Learning time:** 1690 minutes
- Designed time:** 1690 minutes
- Number of students:** 26 (17 + 9)
- Description:** Third year Lower Secondary School students (13-year-old) will...
- Aims:** using robots and CLIL to develop ICT literacy and awareness ...
- Outcomes:** FrancescaNoceti
- Editor:** FrancescaNoceti

The interface also displays a pie chart and three activity cards:

- TLA 1a: Scenario introductory session (IC Strigno e Tesino)**
 - Read:** Presentation of both the FCL-Regio framework and the specific project to the IC Strigno e Tesino students (from now on "ICTS students")
 - Collaborate:** ICTS students plan the Peer Education training session (TLA 3): topics and roles
 - Produce:** Lesson plan for TLA 3 is produced.
- TLA 1b: Scenario introductory session (IS Guetti)**
 - Read:** Presentation of both the FCL-Regio framework and the specific project to the IS Guetti students (from now on "ISG students")
- TLA 2a: Designing the evaluation Questionnaire 1 (IC Strigno e Tesino)**
 - Discuss:** The evaluation Questionnaire 1 will evaluate the effectiveness of TLA 3. Here ICTS students discuss which indicators are to be used in Questionnaire 1.
 - Collaborate:** ICTS students work in 3 small groups and begin designing Questionnaire 1.
 - Produce:** Questionnaire 1 is produced in English using Google Modules.

View the video produced based on the scenario

[FCL Regio: Peer learning of programming while practicing a foreign language - Trentino, Italy](#)



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