



prof. Elena Sacchi and Stefania Leotta

HEART Project

(Help educators to teach through robotic tools)
no. 2021-1-PL01-KA220-ADU-000035164
Database and Guide on Educational Robotics

www.heartroboticsproject.eu

- **Please, introduce yourself**

Elena and Stefania work for the ECM Foundation and run the LEGO® Education workshops, which aim to stimulate creativity and problem solving with LEGO bricks and educational robotics kits. Workshops are conducted at the local library or directly in schools, collaborating with teachers to carry out the activity.

- **What type of educational robot does your organization have?**

We have all the following types of robot, the choice of use depends on the age group. For example, for both primary and secondary schools there are kits to build and programme. Some examples are:

1. Wida and Blu-Bot for children: <https://www.youtube.com/watch?v=T6SyP7lmygs>
<https://www.youtube.com/watch?v=5mUoiAOK-IQ>

2. Lego Mindstorms EV3 usable in high schools: <https://education.lego.com/en-us/productresources/mindstorms-ev3/downloads/building-instructions>

- **How many times did you use the robot?**

We started practising educational robotics in 2015. Since then, we have organised workshops every day. Only with the pandemic was there a break because it was not possible to do group work.

- **How and in what contexts your robot be used?**

We deal exclusively with the use of robots in an educational context. In fact, the kits we use fall into the category of educational and didactic kits. We often use them in school contexts where we always find curious and interested students.

The main problem may be the approach of some teachers: they are not always interested in learning and getting involved. Sometimes they think they do not have the adequate preparation to do the activity together.



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- Which job/ skill/ activity is supported by the robot?

During the workshop, we teach the students how to build the robot and how to move it in space. In this way, it can become an excellent support for history and geography lessons. In fact, it can be described as an interdisciplinary tool. Another important aspect is its use to implement problem solving skills and fine manual dexterity. In general, we have noticed that it makes the approach to teaching subjects more interesting

- If not confidential, who provided your organization with this robot?

Through tenders, funding is confirmed with CampuStore, which is the national contact point for this type of workshop.

- If not confidential, what was the costs for implementation?

We cannot tell you the specific cost, in general there must be a kit for 3 or 4 students

- How long did the development of the education scenario take?

In the past, we were provided with a 3-day general training, but it was not enough. So we searched individually for different videos/tutorials. To this day we keep up to date in this way.

- Have you experienced any problem(s) with the robot?

The most difficult problems to manage and solve are the technical ones. We once had problems with a robot controlled by the tablet. The tablet did not connect to the Wifi and therefore the instructions could not be read.



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- How was the problem resolved?

It is essential to have supporting material available. In another case, the interactive whiteboard did not work and it was essential to have paper material with which to do the activity.

In general, a lot of preparation and previous training is always necessary to be ready to solve problems.

- What consequences did this have on your daily operations?

Unexpected events and problems are part of this type of workshop. We are therefore satisfied with what we manage to convey during the activities. We are also aware that continuous training is necessary, one must always renew oneself.

- Is there any ready to use content that you can share with us?

In this video you can see the use of some robots:

<https://www.youtube.com/watch?v=1Jmju7fKLcQ> 12.

- Are there tutorials for the use of the robot?

Here you can find useful videos for carrying out the activities:

https://www.youtube.com/results?search_query=web.tv+lego+education+english

- Are the materials for a non-expert audience?

They are all easy to use. The robotics workshops we offer are aimed at students between the ages of 5 and 14.



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- Does the robot need additional kit of components to be fully working in the sphere chosen?

It always depends on the activity. Usually a more complex activity is organised with older students, in which case other components are added.

- Is there anything else you would like to share with us?

We believe that educational workshops with robots are the future of education. We are very much in line with the tinkering method.

This method is also effective in adult education, as it facilitates the development of problem solving and abstraction skills, helps improve logical thinking and creativity, and encourages group collaboration to achieve a common goal.

Also, it is interesting to exploit the possibility of error during the activity as an opportunity to improve, learn and experiment.



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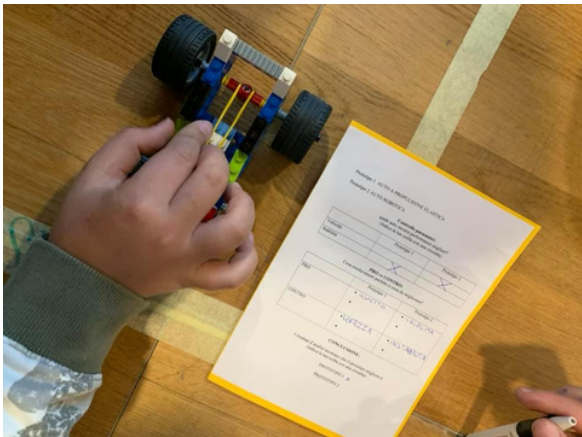
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