

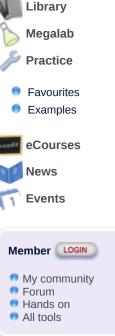
European gateway to science education

For teachers, science communicators and pupils

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First steps into cybernetics - robots and bricks



Newsletter



RSS NEWS



Linda Giannini and Carlo Nati, two education researchers have worked on this peer to peer learning project, involving 3-5 year old kindergarten pupils; 14-16 year old pupils and trainee teachers. It shows how microrobotics and practices of constructionism can be integrated into a problem-solving approach to learning.



Activity concept

The experiments were developed with a team of teachers and supported by some external partners: Intel, Lego Educational and Mediadirect. The core of the experiment can be represented by a set of microrobotics empirical performances and training activities based on the Robolab software. It was an attempt to link, each other, a group of learning activities developed by different school levels, from the nursery to the secondary school, and during which pupils and teachers had to change their roles inside the classroom. Afterwards this kind of strategy was analyzed in preservice teacher training courses at the University of Rome (S.S.I.S art and drawing).

On one side it was a sort of situated and pragmatic activity where knowledge and the world were both constructed and constantly reconstructed trough personal experience but overall, on the other side, the most important thing was that pupils had to explain and represent to other pupils what they learned about building and interact with small robots. In this way teachers could observe their emotions, a lot of different approaches to solve and talk about the same problem and how they maintained or change their theories during a significant period of time.

Resources and materials needed by teachers to carry out activity

Kit http://mindstorms.lego.com/eng/default.asp

Equipment for technical drawing Camera to take photographs Digital camcorder Background information about how to create an algorithm Background experience about to divide a problem in a set of subproblems

Existing materials

Online documents Percorsi IImm 0304-percorsi lego 0405-percorsi lego

EXPO E-learning Conference: Ferrara 12/10/2004 Robolab-Colombi-Giannini-Nati

Synthesis of the experience: Power point file http://www.descrittiva.it/calip/0304/robot.ppt

Results to be uploaded to portal by schools

- Photographs
- Videos
- Algorithms
- Robolab code
- Conceptual maps
- Reports



Existing projects to be involved

Future of learning – Mit Media Laboratory: <u>http://learning.media.mit.edu/projects.html</u>

Intel Teach program: <u>Microrobotica in rete</u> <u>Programma Intel® Teach program</u>

Building Cybernetics toys: Costruire giocattoli cibernetici Costruiamo un robot Programmare un robot

Pedagogy and ICT: <u>Progetto CAB</u> <u>Io bambino tu robot</u> <u>School of Robotics</u>

Open and Distant Training Techniques for Small and Medium Enterprises Robolab Conference

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