
LOGO and NQCbaby – programming Microworlds and Robots according to Logo Philosophy

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Abstract

This workshop is related to Barbara Demo’s and Giovanni Marcianò’s long work “Contributing to the development of Linguistic and Logical Abilities through Robotics”, to demonstrate the experiences of my pupils in these last four years.

My goal was to realize a cognitive laboratory in which pupils could develop their logical concepts, according to Feuerstein’s and Papert’s pedagogical approaches, and using the resources offered by technology. First, using only computers, using the linguistic tool LOGO to give rules and life to the turtles, and then using NQC to repeat the same activity with small robots, the LEGO RCX.

Thanks to Giovanni Marcianò we used an Italian release of David Baum’s NQC open-source programming language for LEGO RCX, NQCbaby, in which pupils found once more the LOGO primitives (avanti, indietro, destra, sinistra, ripeti n ...) that they already know well.

Since the first experiences the pupils realized that “The robot is a turtle that became intelligent enough to go out of the computer for running all around the world!”.

Pupils can manipulate the double environment, the virtual multi-medial microworld and the real LEGO RCX robot, taking advantage of both in learning how to program with an artificial language, which is similar to their natural language. But also to develop and reinforce in children logical and linguistic competences.