



WORK IN PROGRESS

**Giocaweb,
serious game
at the Genoa
Science Festival**

EUROPROJECT

**By "pretending to do"
we can learn...
and have fun!**

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Learn2Lead is the European Project which allows to play online as if you were a real leader.



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



Giocaweb, serious game at the Genoa Science Festival

by Vincenzo Napolano

There are teaching, learning and communicating instruments to which we are so used that we really pay no attention either to their technological value or to the impact they had on our lives. Just think about books and all the different kinds of instruments used to write until the invention of printing. We no longer consider them as “innovating technologies”. However, that is what they were, and they dramatically changed our way of sharing ideas, information and emotions. This is the simple but essential starting point of the exhibition “**Giocaweb, Learning with New technologies**”, curated by the Research Group on Advanced Learning Technologies - ALT, ISTC-CNR, Rome - and the Natural and Artificial Cognition Lab - NAC, University Federico II of Naples. In this perspective, we have to wonder if what we currently define as “new” communication and education

technologies might play a similar role in the future of our society. E-books, Interactive Boards, Computers, I-phones, I-pads and Smart-phones can be considered as new learning instruments, the contemporary and more developed versions of traditional books and blackboards, as well as the modern avatars of cinema, radio and television, which in the past contributed to develop our sense of citizenship and continue nowadays to make us part of the global village. So, it seems legitimate to wonder if the **internet, virtual reality and videogames** will form tomorrow’s Italians.

Meanwhile, virtual world avatars, small domestic robots and augmented reality systems can reproduce a range of functions and behaviors which can be defined as “intelligent”. They can respond to our requests in original and unforeseeable ways. They can autonomously adapt to external stimuli.





They become new subjects, with whom we can develop “relationships” and make experience, improving our opportunities to know and grow. Therefore, we can’t help wondering how their artificial intelligence can compete or cooperate with us.

Giocaweb, created by Orazio Miglino and Maria Luisa Nigrelli from the ISTC ALT team, designed in cooperation with Co-diCS - Communication in Science – and presented during the Science Festival of Genoa is obviously not intended to answer to these questions. It is rather designed to arouse them in the audience, leading the visitors through some of the prototypes invented, developed and produced during a many years’ research program, funded by the EU, in which the two Italian teams of the CNR ALT and the University Federico II NAC have been actively involved. It is a journey through games, online serious games, “adaptive” robots, computer simulations and augmented reality systems, and it is intended not only to offer visitors the opportunity to play and experience new instruments and technologies, but also to stimulate reflection on the potential questions and issues associated with this new kind of experience. The game and prototype stations for educational purposes are positioned and visually connected together so as to form a network representing different functions: the web, the social structure, the neural network and the electronic circuit network in a microchip...

Visitors can experience a range of different contexts where the research and development of cognitive models can be applied to the field of didactics and education. For example, through serious games they can test their ability to communicate, lead a group, cooperate and listen to others in different situations of real life: at work, school or in other social scenarios developed through the Eutopia virtual platform. Through “DreadEd”, visitors can also experience a range of serious games intended to train users to face extreme situations, resolve conflicts and make quick and shared decisions. They

can also increase their awareness of the complex dynamics associated to the exercise of leadership, through Learn2lead and Palma.

But the main attractions of Giocaweb are two recreational-educational applications, two edutainment tools: Roboprof and Braifarm.

Roboprof is a magic learning room on whose walls a long time line shows the key moments in the history of technology in Italy (in parallel to the political and cultural history). Through a sort of technological magic wand - based on an augmented reality system - players can “animate” images and objects, discovering curiosities about the great events which changed everyone’s life, for example when the telegraph was invented, the first social network was created or the first e-mail was sent.

BrainFarm is a factory producing artificial brains for robotic bodies. This platform can help users to understand how we can obtain an “intelligent” behavior by simulating the functioning rules of “natural” brains and bodies.

With BrainFram, visitors can learn to “breed” intelligent robots. Through an online platform they can directly modify and “grow” a robot’s brain, in order to make it successfully move across a 3D environment. When the users are satisfied with the performance of the artificial brain they have created, they will have the possibility to transfer it to a real robot, which will maintain its avatar’s skills. And the possibility to create an artifact simulating “intelligent” behaviors is always fascinating, both for young and adult people, maybe as fascinating as it is for a cognitive scientist.



By “pretending to do” we can learn... and have fun!

Learn2Lead is the European Project which allows to play online as if you were a real leader.

by Elenora Gargiulo

Learning and fun go together in the *edutainment approach*, which includes a range of creative methods of communication and information with didactic purposes. The traditional classroom has been replaced by new learning spaces, a series of web environments where people can learn while having fun.

Periodic training in private companies, public administration and non profit agencies could be based on new approaches and result in a more immediate and efficient understanding of some concepts. Surpassing the traditional learning methods, videogames become a virtual training ground where players can develop and “bring out” (*e-ducere*) new cognitions and skills, transferring them (*de-vertere*) to new contexts, different from the usual ones.

Learn2Lead has tried to integrate both these aspects. In the context of this European project a technological prototype has been created, an online videogame intended to train users to manage the complex phenomenon of leadership. In a virtual environment, within game levels of increasing difficulty, the player is the leader of a team of collaborators, each with their needs, motivations and personal skills and he/she must maintain a high level of performance, while avoiding conflict situations. Moreover, the player takes part to an online championship, so that he/she can compare his/her performance with the other players, while taking advantage of a tutorship system which supports him/her in an experiential journey through the leadership theories.

The final Conference for the Learn2Lead Project was held in Rome on the 16th of December, but the scientific cooperation between the European partners started in 2009: the ALT Research Group – Advanced Learning Technology from the CNR Institute of Cognitive Science and Technology - the Entropy Knowledge Management, an Italian training service company, the University of Lincoln



(UK), the Universitat Jaume I De Castellón (Spain), the Natural and Artificial Cognition Lab from the University “Federico II” of Naples (NAC - LAB) and the MF & PARTNERS Consulting - a French training service company.

Combining the different professional experiences and competencies of these partners, a study has been started in order to integrate the leadership theories into the practice of a videogame. The peculiarity of this Project is having identified a method to implement an experiential laboratory – that is, the online game Learn2Lead – based on a sound theoretical foundation developed through a dynamic model of artificial intelligence.

The starting assumption is that everyone – not only managers – can achieve better team performance if they have theoretical and practical knowledge of what is needed to manage a working group. Therefore, an optimal leader profile has been defined, where the key characteristic is the ability to balance resources based on actual circumstances rather than a strong personal appeal. The perfect leader’s avatar can encourage his/her team enga-



Roma 16 dicembre 2011,
Conferenza finale del progetto
Learn2Lead

Sotto e nella pagina a fianco:
un'immagine del web-game
Learn2Lead



gement, improve his/her personal and his/her collaborators' performance and increase group satisfaction. Moreover, this aspect has been integrated with theories about the employees' personality traits, their inner and outer motivation and their personal ability to manage workload. The serious game Learn2Lead has been evaluated in three pilot studies conducted in Spain, France and Italy, and has tested the skills of a sample of European managers. Early results show that the simulation context, where the player "pretends to be" a leader, can not only

improve his/her theoretical knowledge, but also the range of skills needed to reflect on his/her own daily work. The resulting personal empowerment is linked to the satisfaction of the three needs defined by McClelland - need for achievement, need for affiliation and need for power – amplified by the pleasure of playing a game.

Actually, one of the most important results is the success achieved among those who played this videogame. Considering the large participation recorded by the project server and the outbreak of online challenges and competitions, whose results are published on the website, it would be reductive to consider Learn2Lead as just a game for young people!

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