

The SISINE Project: Developing an E-Learning Platform for Educational Role-Playing Games

by Orazio Miglino

Role-playing games are commonly used to teach negotiation skills. In traditional practice, learners in a small group act out roles assigned by the trainer. The SISINE project will make it possible to conduct this kind of role-playing game at a distance.

The SISINE Project, funded by the EU Leonardo Program, has developed an e-learning platform and a teaching methodology with the objective of making it possible to conduct negotiation-type role-playing games at a distance. The teaching methodology exploits a

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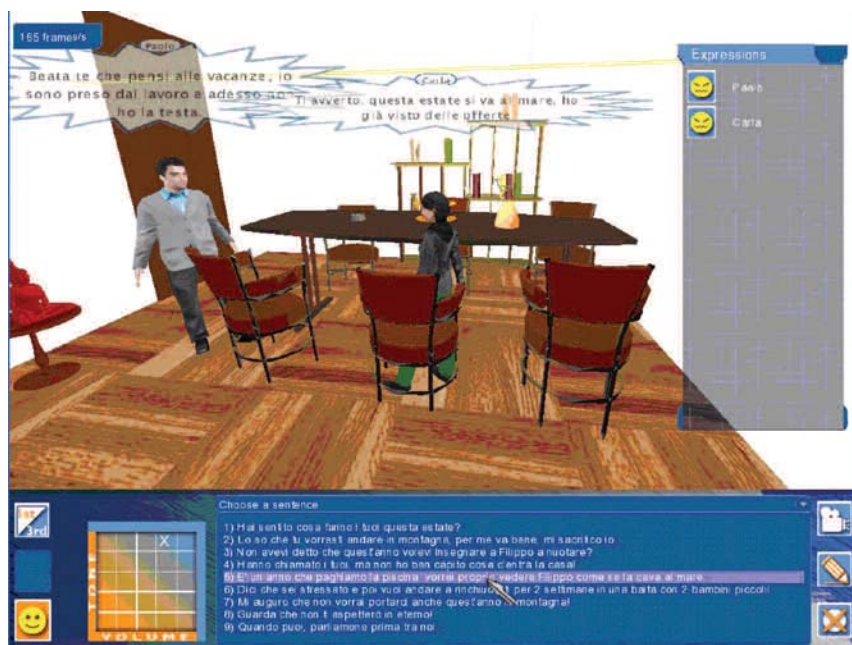


Figure 1: A SISINE role-play game session with two players.

specially developed technology platform allowing a small community of players to communicate, interact and play online. The current beta version supports up to twenty simultaneous players, who are represented by avatars. Communication between players is based on short text messages displayed in bubble cartoons above the avatars' heads, and special commands allow players to control the avatars' movements, gestures and facial expressions. The platform provides the normal functionality expected by players of Multiplayer Online Role-Playing Games (MORPG), as well as additional functions that allow a trainer to set up games, intervene during game play, record spe-

cific phases of a game, annotate recordings and discuss them with the players. In June 2007, we began testing SISINE in Poland, Slovakia and Italy. In Poland the experimental group consisted of company sales representa-

tives; in Slovakia of managers in NGOs; in Italy of teachers. In each case, the group used a custom-designed virtual environment in which to practice specific forms of negotiation: commercial negotiation (in Poland), negotiation in human resources management (Slovakia) and intercultural negotiation (Italy). In all cases, SISINE is designed to help learners acquire the basic notions and rules of negotiation and, more importantly, practical know-how to apply this knowledge. While SISINE is inspired by role-playing games, it provides additional facilities designed for distance learning. Below we describe the most important of these functions.

Tools for Teachers

Teachers can write scripts for online multiplayer games or for single player exercises (so-called 'gyms'). In designing a multiplayer game they can choose the roles, goals, bodies and personalities of individual players. Once the game is in progress, they can watch what is going on from any viewpoint, intervene at any moment, send messages to players, or activate special 'events'. When it is over, they can become critics, leading a group discussion and analysing the strategies adopted by the players.

Tools for Tutors

As well as preparing the scripts for online games and assigning characters to users, there are two other ways in which teachers can intervene in learners' interactions with SISINE. One is to take on the role of one of the characters in the simulation. The other is to act as an invisible stage director. In this second role, teachers can: a) invisibly observe the interactions among players; b) access the players' 'private characteristics'; c) listen in to private messages ('whispers') between players; d) 'broadcast' messages visible to all players; e) exchange private messages with a specific user; and f) activate events, changing the course of the simulation.

SISINE for Players (Learners)

The first possibility SISINE offers to learners is that of participating in online role-playing games defined by teachers. To access the system, learners use a student version of the SISINE software. Once logged in, they join a 3D graphical environment (see Figure 1) in which they are represented by avatars, and can use these to explore the environment. Players communicate via short texts and various forms of paraverbal and non-verbal communication. For instance, they can control how loud they want to speak (shown by the size of characters used in the bubble cartoons) and in what tone of voice (shown

by the shape of the bubble). Another option is using avatars' facial expressions to show warmth, surprise, anger and so on. Players can control avatars' gestures and body movements. They can also 'whisper' messages to each other: these are audible only to the other partner in the conversation, and to the tutor. Finally, they can communicate with the tutor to ask for advice or clarification or to raise any other question that concerns them.

The SISINE team is now working to improve the 'look and feel' of the system and to monitor the trials conducted in Polonia, Slovakia and Italy. SISINE

represents an attempt to use multiplayer game technology applied to an e-learning context. Although the current system is designed primarily to teach negotiating skills we believe that it has a strong potential for use in other domains – in particular in the teaching of strategic and soft skills.

SISINE is a two-year project and is due to finish in October 2007. The SISINE consortium consists of the Institute of Cognitive Sciences and Technologies, Italy (Coordinator); the Artificial Systems group, Université de Paris XII, France; Entertainment Robotics, Denmark; ITTI - Institute of Communica-

tion and Information Technologies, Poland; Glaux, SrL., Italy; TILS Spa, Italy; Mediazioni S.c.a.r.l., Italy; PDCS – Partners for Democratic Change, Slovakia, Slovakia and Xiwrite Srl, Italy.

Link:
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Bringing Together Knowledge Management and E-Learning in Software Engineering: The Software Organization Platform

by Eric Ras and Jörg Rech

The integration of knowledge management and e-learning has been a frequent topic of discussion in recent years, but the idea has rarely been implemented. The Software Organization Platform (SOP) project is a technology-based approach to bringing the two streams of research closer together. SOP enables software engineers to act as both consumers and producers of information on projects, roles, processes, products, or other learning content. With a focus on the domain of software engineering and by using a semantic Wiki as a technical basis, SOP has recently been made open source.

As a very knowledge-intensive activity, software engineering strongly relies on an individual's competencies and skills. Short innovation cycles in software engineering and the rapid development of new methods and techniques lead to many learning situations in which new knowledge is required to solve the challenges at hand. Typical approaches include formal courses, seminars, and Web-based training, which are used to familiarize software engineers with new technology.

For the professional workforce however, learning has moved away from strict formal learning types towards more informal and collaborative learning and sharing. This 'Learning 2.0' is characterized by learning at the workplace, interwoven with work processes, related to daily activities, and integrated into available social networks. In addition, the rapid development of semantic Web technology and the availability of collaborative and social software (eg Wikis or blogs) enables the development of

semantic work environments with intelligent assistance and offers new possibilities for the technical support of adaptive individual and organizational learning.

Wikis (which have their origin in software engineering) and blogs have been recognized as beneficial tools for knowledge management and group communication in the corporate 'Enterprise 2.0' world. However, the easy creation, structuring, maintenance, retrieval, dissemination, and understanding of knowledge and experiences still present great challenges.

In the SOP project, we approached these challenges by extending a lightweight knowledge management platform with semantic Web technology and e-learning functionalities. Individual learning in the workplace is supported by a context-aware fusion of previously developed learning content with collaboratively developed documents and experience descriptions from daily work.

The main ideas for SOP emerged from the national project RISE (Reuse In Software Engineering), funded by the German Ministry of Education and Science (BMBF; grant no. 01ISC13D). This research project was concerned with the reuse of software documents in agile software organizations based on ontologies, Wikis and semantic technology. The challenge of RISE was to integrate knowledge management into a software organization in a way that is fun to use and requires only minimal effort. Software developers received assistance in the reuse of requirements, code, information and decisions about the software system they were developing.

With the emergence of semantic Wikis, the ideas and technology developed in RISE were integrated into an internal project at the Fraunhofer Institute for Experimental Software Engineering (IESE), which was named SOP. This project resulted in a technology of the same name – the Software Organization