

Virtual training gets real

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Computerised training systems are getting an extra dose of reality, thanks to an EU-funded research project led by the University of Leeds.

PC-based virtual reality training is typically cheaper than face-to-face sessions with a mentor or coach. As the recent Hollywood blockbuster *Up in the Air* showed, multiple members of staff can be trained by practising various scenarios in a [virtual reality environment](#) without having to leave their desks.

With businesses continually seeking to curb costs, more and more companies may follow the example of George Clooney's fictitious employer, Career Transition Counselling, and use simulators to train their employees. But [virtual reality](#) training tools are seldom as effective as working with a real person because the simulation package cannot respond to trainees' past experiences or preconceptions. For example, software designed to help managers conduct job interviews may include a number of different simulated scenarios that appear true to life. However, if the trainee is consistently hostile to the virtual interviewee or overly sympathetic, the system will not flag this up or suggest they try an alternative approach.

Researchers working on the ImREAL project are hoping to plug this gap between the 'real-world' and the 'virtual-world' to create a simulated learning environment that responds to users' behaviour and adapts accordingly. The project is involving seven partners from six European countries, including Austria, Germany, Ireland, Italy, the Netherlands and the UK.

"Training often suffers when there are budget cuts, but having a highly-trained workforce can help companies get through difficult periods, so cutting or restricting training can be a false economy," said the project's coordinator, Dr Vania Dimitrova from the University of Leeds' School of Computing. "Simulated environments provide a cost-effective alternative to standard face-to-face training, but they need to incorporate the cognitive, social and emotional aspects of the activities that are being modelled. With the tool we are creating, we will close the gap between the simulated experience and the 'real-world' experience."

The researchers will be focusing on simulation systems for interpersonal communication – so-called 'soft skills' that are important when managing relationships in the workplace, dealing with customer enquiries or providing advice. ImREAL will develop intelligent tools that will encourage trainees to detect subtle differences in communication and social cues across different cultures. Chinese, Japanese and African people, for example, tend to use messages where the meaning is either implied by the physical setting or is presumed to be part of an individual's internalised beliefs, values and norms. In contrast, Americans and Europeans tend to communicate in a more explicit, open way.

The research will focus on three key sectors:

- **Business:** training managers and employees to deal with cultural diversity in key activities, for example, interviews or staff appraisal;
- **Academia:** interpersonal communication training of medical students or training student advisers;
- **Volunteering:** training volunteers to communicate with people in

distress.

Researchers will gather real-life experiences from each sector and develop software to organise and identify key elements of 'real-world' activities. This will enable simulations to draw on real-life situations and provide new opportunities for assessment, feedback, and learning. The aim is to develop a 'self-growing' adaptive simulation which embeds a 'virtual mentor' helping learners reflect on the experience they work through.

The €4 million research project involves an interdisciplinary team of computer scientists, psychologists, business and social scientists, experts in adult learning and two SMEs who produce training software, from across Europe. Radically new intelligent technologies for learning will be developed by adopting the latest advances in computerized learning tools such as Semantic Web, context modelling, and dialogic interaction. Technical implementation will be grounded in sound socio-pedagogical theories, such as 'activity' theory, andragogy, and self-regulated learning.

Researchers from the University of Leeds will be drawing on a partnership between the School of Computing (Faculty of Engineering), who are coordinating the project, and Leeds University Business School. This will combine expertise in artificial intelligence in education, knowledge capture, and 'activity' theory to lead the work on 'real-world' activity modelling.

"The problem we are tackling can't be solved by technology on its own, which is why so many disciplines are involved," said Dr Dimitrova.

"This really is a pioneering approach to adaptive learning but we want to see it through from concept to delivery. By the end of three years, we aim to have two fully functioning demonstration simulators up and running that incorporate these new ideas and illustrate highly innovative technologies for learning."

More information: www.imreal-project.eu/

Provided by University of Leeds

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