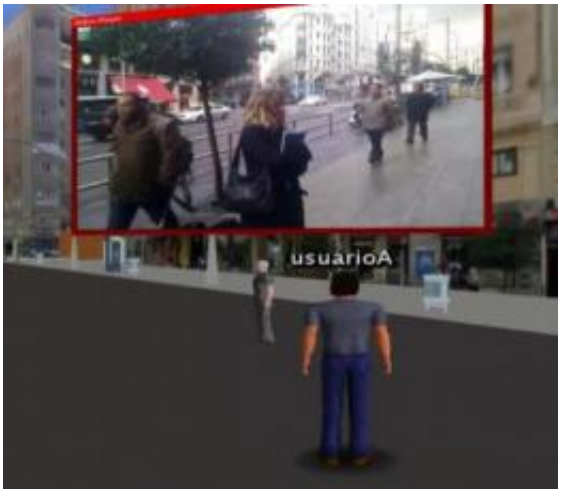
Applying enhanced virtuality to language learning

February 21 2012



Merging the real world with its mirror in a virtual world so that students can be immersed in a hybrid learning environment that permits improved language teaching: that is the objective of scientists at the Universidad Carlos III de Madrid who have developed the first prototype that demonstrates how a platform of this type works. Credit: UC3M

Merging the real world with its mirror in a virtual world so that students can be immersed in a hybrid learning environment that permits improved language teaching: that is the objective of scientists at the Universidad Carlos III de Madrid who have developed the first prototype that demonstrates how a platform of this type works.

These researchers have used an open code platform to create distributed

three-dimensional virtual worlds (OpenWonderland), and they have made use of geolocalization, which is already incorporated in smartphones. The purpose is to take advantage of the immersion characteristics that virtual worlds offer along with the interaction of these three spaces (reality, the virtual world and the hybrid one) in order to create e-learning activities in the field of languages.

The researchers have recently carried out a pilot test of the prototype in the center of Madrid in which Spanish was taught to foreigners. "We created a mirror of the real world, in this case of the Gran Via in the capital, and we superimposed digital information on the reality that the users observed through a camera and a mobile phone screen; this way we were able to create a world of enhanced reality ", explains María Blanca Ibáñez, of UC3M's Telematic Engineering Department. In this way, the users who are walking along the street can see the avatars that represent the participants in their smartphones, which are connected to the platform via Internet. "In addition - Professor Blanca Ibáñez states – the real world participants have a representative in the virtual mirror world who follows the same route, so we obtain an 'enhanced reality' world in which both types of users can interact ".

Between the real and virtual worlds

With this system, students who are inside of the system can see the movements of the avatar who represents the teacher, who may really be in the street, and who can, in turn, interact with the students by means of his/her mobile phone. The experiment, as described by the scientists in the Telematic Applications and Services Group (GAST – Grupo de Aplicaciones y Servicios Telemáticos) at UC3M in an article published in the journal, *IEEE Internet Computing*, is part of the research project "España Virtual" funded by the Ingenio 2010 Program, subcontracted by Deimos Space, with the participation of the firm DNX and the support of the Universidad Nacional de Educación a Distancia (National

Distance Learning University.

The advantages of the application of these technologies in the field of e-learning are quite varied, according to the researchers. On one hand, it is hoped that students will be motivated to participate in the learning process due to the more interactive nature of the activities and because they are able to experience a variety of situations. In addition, these are worlds that can be seen as laboratories where the teachers can control the variables to a greater or lesser extent. "They are interactive spaces where the subject can be contextualized and where the impossible can be made possible", Professor Blanca Ibáñez affirms. "For example, if we are studying the discovery of America, we can accompany Columbus in his historic accomplishment, or we can travel through the arteries of our own bodies, see a magnetic field or modify the structure of a molecule ", she concludes.

More information: Learning a Foreign Language in a Mixed-Reality Environment, María Blanca Ibáñez, Carlos Delgado Kloos, Derick Leony, José Jesús García Rueda y David Maroto. *IEEE Internet Computing*. Volume: 15. Number: 6. Pages: 44-47

Provided by Carlos III University of Madrid