

Mobile lessons: Using geo-referenced data in e-learning

Claude Moulin¹, Sylvain Giroux², Antonio Pintus¹, Raffaella Sanna¹

¹ CRS4, VI Strada OVEST, Z.I. Macchiareddu, C.P. 94, 09010, Uta (CA) – Italy
{moulin, pintux, raffa}@crs4.it

² Dept. of mathematics and computer science, University of Sherbrooke, Canada
sylvain.giroux@dmi.usherb.ca

MOBILE LESSON : We coined the term “mobile lesson” for courses held outside of a classroom. During these courses, all actors are mobile. Themes tackled in such lessons are as varied as geophysics and mineralogy in geography, monuments in history, trees and ecosystems in biology, or distance measuring in physics and geometry, dialects in linguistics... Mobile lessons are not a new teaching technology or strategy, but new mobile devices may render it more efficient and more attractive. We believe that going on the field, looking for information and above all observing actual phenomenon, therefore acting in a more personal and autonomous way, are really helping students to build their knowledge.

SOFTWARE: The software we built addressed both the edition of a mobile lesson content and the management of the students on the field. The implementation rely on e-mate, a framework for mobile personalized geo-referenced services. If necessary, e-mate generates a user interface on the fly for a device (PCs, PDAs, etc.). The implementation was done in Java and questions were specified in XML.

EXPERIMENTS: Teachers of a high school in Sardinia (Italy) developed a mobile lesson for the archaeological site of Nora. This site is interesting from an historical point of view because it contains both Punic and Roman ruins. First teachers prepared the lesson. They went to Nora with a GPS system and point out the coordinates of significant locations we called “hot spot”. Then students were taught on the Roman civilization in the classroom. Next, the class moved to Nora. Teams of two or three students were equipped with a laptop connected to a GPS. Students were free to go wherever they wanted on the site. They had to discover the hotspots previously identified by the teachers. Labels like “the roman theatre” give the name of the hot spot. But just finding the theatre was not enough, because this place represent a squared area whose side is more than forty meters long. The students had to find the “exact” position picked up by the teacher, near the theatre. Why the teacher chose this point was a question they had to answer. If they met difficulties to find the right place, then explanations, help and hints were supplied gradually. Thus, students had to move and ask to the software if they were at the right place or not¹. If it was the case, other questions in relation with their position were asked. These may be general questions about the place but often they were questions about what the students can see at the very moment from that precise position. A score was associated for the discovery of locations and for right answers to questions for motivating the students a bit more.

¹¹ Tests made on the precision of GPS, lead us to accept a position as right if it was at most at eight to ten meters of the chosen point. This precision was satisfying.