Mobil learning with Open Learning Environments at Shanghai Jiao Tong University, China

The recently started project ROLE (Responsive Open Learning Environments) aims at delivering and testing prototypes of highly responsive technology-enhanced learning environments, offering breakthrough levels of effectiveness, flexibility, user-control and mass-individualisation [1]. The ROLE consortium consists of 16 internationally renowned research groups and companies and is funded by the European Commission. ROLE actively seeks input by third parties and has created a discussion group at LinkedIn to facilitate contributions [2].

ROLE researches adaptivity and personalization in terms of content and navigation and the entire learning environment and its functionalities. This approach permits individualization of the components, tools, and functionalities of a learning environment, and their adjustment or replacement by existing web-based software tools. Learning environment elements can be combined to mashup components and functionalities, which can be adapted by lone learners or groups to meet their own needs and to enhance the effectiveness of their learning. This can help them to establish a livelier and personally more meaningful learning experience. The validity of ROLE's research will be assessed in several real-life testbeds.

The largest of the testbeds will be implemented by Shanghai Jiao Tong University (SJTU). In a developing country such as China one foremost goal is to enable access to education to the largest number of citizens possible. In the recent years, the Chinese government significantly invested in tertiary education with the effect that the number of graduates at all levels of higher education in China has approximately quadrupled over 6 years [3]. One of the main research questions driving research at the e-learning lab at SJTU is how to use technology-supported learning to manage such large number of students.

Solutions that will be developed in ROLE have the potential to significantly improve teaching and learning under these circumstances. There, especially mobile access is crucial, less because of curiosity-driven research interests due to the novelty of mobile devices, but out of societal necessity. In developing countries, the penetration rate of mobile phones surpasses that of home computers significantly. Recent figures by the China Internet Network Information Center show this trend quite clearly [4]. The July 2008 survey reports 84.7 million computers connected to the Internet (including desktop and laptop computers) compared to 592 million mobile phone numbers (growing at a rate of 18%). The mobile access to the Internet is explored by an increasing number of users. Of the 253 million Internet users in China, about a third (84.7 million) surf the Web with their mobile phones, 22.65 million more than in the first half of 2008. The proportion of desktop Internet users is actually dropping compared to the proportion of mobile netizens. This trend is visible elsewhere, too. According to the International

Telecommunication Union [5], in 2007 the fixed broadband penetration rate in Africa was 0.2%, compared to 27% mobile penetration rate. This clearly shows that the development of learning systems usable by mobile devices is relevant world-wide. The SJTU testbed will thus enable the ROLE consortium to learn about the challenges of mobile Personal Learning Environments (PLE).

More specifically, the ROLE framework and tools will be assessed at the online college of SJTU (Online-SJTU). A great majority of the students in this online college are adult learners who study for their bachelor degree. Most of them work full time and study in the evenings and on the weekends. Due to their busy schedule, they are often not able to attend class in person. Thus, all classes offered in this college are also broadcast live via the Web. Students can tune in to the live classes or the recordings from their desktop or laptop computer, but also from the mobile phone.

In China the more teacher centered teaching is still prevalent [6]. In contrast, ROLE will allow students to be more active and to take more control about their own learning processes. How this could look like we illustrate in the following Scenario:

Teacher Li is a novice teacher, and still inexperienced with ICT. He wants to increase active language production of his students in a "English News" class. When preparing his class, Li browses through the different "collaborative problem solving" patterns stored in the ROLE framework. The "joint text production" pattern catches his attention and he decides to use it for his students to produce news articles. He adds the pattern to the course PLE. The pattern then adds the required tools and a guide for the teachers and students that explains them how to best use the tools in this kind of activity. Here, the tools include a mind-mapping tool to derive jointly the structure of the article, a collaborative text editing tool to write it, a Flickr integration to share photos to illustrate it, and a forum for general feedback and reflection about this activity. Later that week in the class room, Li makes the PLE page accessible to his students and the collaborative work starts. The students are now able to interact with their peers, whether present in the classroom, at home or on a business trip. For instance, during the day, student can use their mobile device to upload pictures that illustrate the news story.

Of course this scenario is just one small example of many. However it serves to illustrate central features from a user side: teacher, but also students will be able to access the tools they want to use and to combine the tools to form their Personal Learning Environment.

[1] EU-Project Responsive Open Learning Environments (ROLE): http://www.role-project.eu
[2] ROLE Community at LinkedIn: http://www.linkedin.com/groups?gid=1590487
[3] Li, Y.; Whalley, J.; Zhang, S. & Zhao, X. (2008), 'The Higher Educational Transformation of China and Its Global Implications'(13849), Technical report, National Bureau of Economic Research.

[4] CNNIC (2008), 'Statistical Survey Report on the Internet Development in China -- Abridged Edition', Technical report, China Internet Network Information Center.
[5] International Telecomunication Union (2008), 'Global ICT Developments', published online at http://www.itu.int/ITU-D/ict/statistics/ict/index.html, This is an electronic document. Date retrieved: October 08, 2008
[6] Zhang, J. Cultural Adaptation of Technology and Learning Innovations in Asia: An Emergent View Proceedings of AERA 2007 Symposium on Global Perspectives on Technology as a Change Agent in Teaching and Learning, 2007, 50-61.

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