# ARCHITECTURES FOR DISTRIBUTED AND COMPLEX M-LEARNING SYSTEMS: Applying Intelligent Technologies

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Reviewed by
Ozlem OZAN
Computer Education and Instructional Technologies,
Eskisehir Osmangazi University, Eskisehir, TURKEY
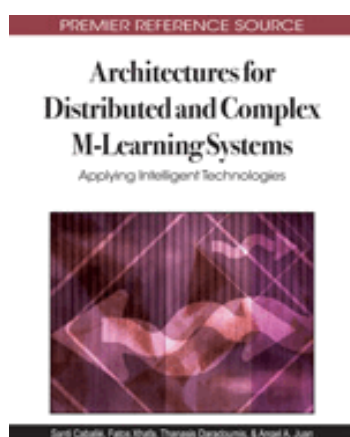
Today mobile technologies have become an integral part of the learning activities. With mobile technologies "Any time, anywhere, any device" promise of e-learning is going to become actually applicable and mobile technologies are going to provide opportunities to be "always on" and connected for twenty-first century learners and to get information on demand with "just enough, just in time, and just for me" approach (Yamamoto, Ozan, & Demiray, 2010). Mobile technology includes both hardware and networking applications; hence both of them are necessary for the existence of m-Learning. Today one of the big challenges of mobile learning is technical issues. This book provides case studies and solution about technical applications of mobile learning.

The book's broader audience is anyone who is interested in mobile learning systems' architecture. Beside this, it gives valuable information for mobile learning designers.

The book is edited by The book is edited by Angel Juan , Thanasis Daradoumis, Fatos Xhafa and Santi Caballé. Angel A. Juan is an associate professor of simulation and data analysis in the computer sciences department at the Open University of Catalonia (Spain).

Thanasis Daradoumis is an associate professor in the Department of Computer Sciences, Multimedia & Telecommunication at the Open University of Catalonia. Fatos Xhafa is an associate professor in the Department of Languages and Informatics Systems in Polytechnic University of Catalonia. Santi Caballé is an associate professor and a researcher in the Department of Computer Sciences, Multimedia and Telecommunication of the Open University of Catalonia.

The book is consisted of 410 pages (+xxiv) covering 17 articles divided into three sections. Topics covered in the book as follows adaptivity for mobile learning , content management, e-learning service platform, events in mobile learning , game based learning , independent mobile learning , intelligent m-learning frameworks , mobile web 2.0 , mobilized learning environment , ubiquity in mobile learning.

In first section architectures, frameworks, and platforms for mobile learning systems are given. First chapter presents the COLLAGE (collaborative learning platform using game-like enhancements) project as a good practice example of mobile and game-based learning that aims to integrate formal and informal learning settings through an

innovative pedagogical approach. Second chapter presents a project called Campus Ubicuo and its architecture. The novelty of this system is the integration of several wireless technologies in an only mobility learning environment. Third chapter discusses the principles underpinning the design and the development of a framework, MobiGlam, which supports ubiquitous and scalable access to learning activities. The framework allows full end to end interconnectivity among open source virtual learning environments (VLEs) and Java-enabled mobile devices. Fourth chapter gives information about ICAT (Identification, Classification, Adaptation and Tagged XML) framework. In order to optimize the content presentation on different mobile devices, the content has to be adapted. ICAT addresses these issues. Chapter five reports on a learning architecture adopting ubiquity and pervasiveness to support communities of learning practice. The research focused on mobile devices that are capable of voice, text, video/photo interactions, and Web access, and how this can cater for the preferred learning styles of the learners while supporting the workplace learning and the educational environment. In chapter six a service platform for mobile learning is introduced. In this platform, the virtual learning services for students, instructors and course providers are provided leveraging on service grid resource management capabilities on group collaboration, ubiquitous data access, and computing power.

Second section is about technological advances in support for mobile learning. Chapter seven explores the potential of wireless mobile devices and Web 2.0 (social software) to create social constructivist learning environments that bridge multiple learning contexts. In this section chapter eight focuses on providing a business-technical presentation of mobile grid, as an enabling technology for next generation m-learning applications. It presents general mobile grid architecture able to serve the strict requirements such an m-learning application poses, and analyse the main trends and challenges in the mentioned sector. Chapter nine describes the background and implementation of ICT enhanced learning and teaching (ICTELT) blended m-learning academic writing intervention piloted at Dubai Men's College (DMC). Chapter ten provides information about the architecture of an ontology based content authoring system, developed according to the challenges emerging from Bologna process deployment in Hungary. Chapter eleven is about a system called MILE (Mobile and Interactive Learning Environment) which is used to support a blended approach to learning and teaching with mobile devices. The system has a modular and extensible system architecture which aims at supporting different platforms and devices both for students and for teachers.

In chapter twelve, context modelling, context matching, ontology, and the Semantic Web technologies are introduced. Chapter thirteen looks at the implementation and evaluation of five different mobile learning scenarios with locationbased features, done under the project COLLAGE (Collaborative Learning Platform Using Game-like Enhancements).

In third section, architecture applications and case studies on mobile learning practices are provided. Chapter fourteen in this section evaluates the behavior of wireless technologies in a mobile learning architecture when different services are offered through diverse networks. Chapter fifteen reports on the deployment, the evaluation, and the results of MobiGlam case study. MobiGlam is a generic framework of interoperability with existing virtual learning environments (VLEs) that provides a compact and easy to use implementation of learning activity on Java enabled mobile devices. Chapter sixteen explores using mobile technology to support quality learning for school activities involving field studies. Chapter seventeen analyses a range of learning programmes that have utilised m-learning to engage disenfranchised learners in regional areas across Northern Australia. The author argues that m-learning is more than a tool to engage learners; it provides an insight into understanding how people learn and develop strong identities as learners.

In conclusion, this book informative, and provides information about mobile learning system architectures in a wide range. It can be used both experts in the field and anyone who is interested in technical framework of mobile learning.

REFERENCES

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BIODATA and CONTACT ADDRESS of REVIEWER

Ozlem OZAN has been a Research Assistant in Department of Computer Education & Instructional Technology at Eskisehir Osmangazi University in Turkey since 2002. She received B.S. degree in Electrical and Electronics Engineering Department and master's degree in Distance Education at Anadolu University. Her research interests are distance education, information and communication technologies. She also gives lessons about multimedia development as an instructor. Now she is also a PhD student in Distance Education Program of Social Sciences Institute of Anadolu University.
URL: http://www.ozlemozan.info/
Phone (work): +90222 2393750 / 1649
E-mail: ozlemozan@gmail.com ; oozan@ogu.edu.tr