Guest Editorial – Innovations in Designing Mobile Learning Applications

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This special issue aims at giving readers several innovative ideas of designing mobile learning applications. Recently the rapid growth of mobile technologies has leaded e-learning to a new era. Mobile devices become more powerful, portable and convenient to accompany users anytime anywhere in the daily life, resulting in that the applications for mobile devices have been widely utilized at schools, workplaces and daily life. Innovative design of mobile learning applications can facilitate users not only studying learning contents conveniently but also interacting with others collaboratively anytime and anywhere. With these features, mobile learning application will become indispensable for those learners owning hand-held devices at hand. Furthermore, with the advanced technologies like GPS, RFID or sensors, mobile devices also provide context-related opportunities for users to enjoy their personal moment or explore their surrounding context from wherever they may be.

Review study

Mobile device applications bring a great amount of convenience for not only learners but also educators. Therefore, how to utilize these strengths well become important, and using the appropriate strategies is one of the major issues. The first paper entitled “The Add-on Impact of Mobile Applications in Learning Strategies: A Review Study” written by Yu-Lin Jeng, Ting-Ting Wu, Yueh-Min Huang, Qing Tan and Stephen J.H. Yang investigates the add-on impact of mobile applications in learning strategies and also identify and discuss the significant characteristics of mobile learning.

Mobile learning definition in higher education

Generally, many researchers have defined mobile learning from different dimensions. Mobile learning has one assumption that learners can move continually with mobile devices and possible wireless connection. Mobile devices also could provide meaningful assistance to users’ work, study and entertainment. For education, the context, learning process and the outcomes should be considered with an extension to the outside of the classrooms or lecture halls. The paper “Defining Mobile Learning: Redesign Higher Education Landscape” written by Mohamed Osman M. El-Hussein and Johannes C. Cronje attempted to interpret the meaning of mobile learning in higher education by applying mobile concepts and characteristics as various elements of the mobile learning experience.

Mobile device applications on knowledge management and learning enhancement

Jane Y-K Yau and Mike Joy study the approach of using dairy to record users’ learning contexts in m-learning application; because that learning contexts in dairy are significant and helpful for selecting appropriate learning materials to users in their paper entitled “A mobile context-aware framework for managing learning schedules – data analysis from a diary study”.

Providing the advanced mobile device application on education not only create a better learning environment for students but also enhance their learning motivation. Nevertheless, teachers know more about what students think during their learning process, they can assist more on learners’ difficulties and then to improve their learning. Pi-Hsia Hung, Yu-Fen Lin and Gwo-Jen Hwang proposed a formative assessment design for integrating PDAs into ecological observations. In the study, PDAs were used as a cognitive tool to provide guidance, information and feedback relevant to the outdoor learning tasks.
In the science curriculum, kinematic graphs are vital but challenging. Many misconceptions may occur when students are learning the kinematic graphs. Simon Wood and Pablo Romero in their paper entitled “Learner centered design for a hybrid interaction application”, delineate the design process of Move Grapher, which is a GPS-enabled, mobile learning application to support the teaching and learning of kinematic graphs.

Yu-Ju LAN, Ning-Chun Tan, Yao-Ting Sung, Chiu-Pin Lin, and Kuo-En Chang built an estimation instruction scenario using the mobile technology to facilitate students’ strategies of discussion, cooperation and computational estimation skills in their paper entitled “Mobile-Device-Supported Problem-Based Computational Estimation Instruction for Elementary School Students”.

In the paper entitled “User Acceptance of Mobile Knowledge Management Learning System: Design and Analysis” written by Hong-Ren Chen and Hui-Ling Huang, proposed a mobile knowledge management learning system for learners to acquire, store, share, apply and create knowledge. By integrating mobile knowledge management into practical teaching activities, learners can develop their knowledge management and problem solving abilities.

**Mobile computer supported collaborative learning**

Jeff J.S. Huang, Stephen J.H. Yang, Yueh-Min Huang and Indy Y.T. Hsiao attempt to propose a collaborative service mechanism and an analysis mechanism to improve mobile collaboration. The aim of this paper, “Social Learning Networks: Build Mobile Learning Networks Based on Collaborative services”, promotes Internet-based informal collaboration over CSCW and MCSCL by exploring the plausibility of providing system-level support and services for forming collaborative groups dynamically.

**Mobile device applications on language learning**

Shu-Chen Cheng, Wu-Yuin Hwang, Sheng-Yi Wu, Rustam Shadiev and Ching-Hwa Xie in their paper entitled “A Mobile Device and Online System with Contextual Familiarity and its Effect on Campus English Learning” explored how context-familiarity using multimedia and GPS can help students learn campus English as second language and designed a mobile system to facilitate their collaboration of English learning both in class and on campus.

Language learning has always been a trend around the world and people with good language ability may benefit their communication in their study, workplace and daily life. Mobile device application can facilitate learners’ language learning with authentic context support and retrieve digital information in the Internet as well. Tim de Jong, Marcus Specht and Rob Koper explored how mobile media delivery can affect language learning by comparing two context filters and four content selecting methods in their paper entitled “A study of Contextualized Mobile Information Delivery for Language Learning”.