

# Licentiatavhandling i datavetenskap

## Towards a Mobile Learning Software Ecosystem

Oskar Pettersson

---

**Tid** Fredagen den 10 juni 2011 kl 13.15  
**Plats** Sal D1136, Linnéuniversitetet, Växjö  
**Opponent** Dr Richard Torkar, docent i program-  
varuteknik, Blekinge Tekniska Högskola

**Abstract** The ability to carry communication services around, combined with the ubiquitous presence of computing technology, affects everything we do from how we pay for things to how we expect to interact with public institutions such as schools. There are now plenty of systems that convey education by utilizing mobile devices. As an extension of technology moving towards ubiquity, there are efforts aiming to bring this to an educational use as well. Efforts in this direction are channelized in the field of mobile learning. The speed of technological development, and the possibilities it brings, introduces a large number of challenges when implemented in educational settings. These challenges can be related to for example pedagogical aspects, tools, implementations and organizations. Recent developments including the notions of learning ecosystems, learning landscapes and organizations suggest that the domain of mobile learning can be negatively affected from the lack of a systematic reuse approach. This thesis pursues these challenges by investigating how systematic reuse can be promoted in mobile learning systems.

A collection of five peer-reviewed publications that elaborates on the different stages of the research process pursuing the main research question forms the core of this thesis. This research process includes a survey stage, elaborating on different aspects related to reuse and mobile learning, an analysis stage that resulted in a descriptive model and several additional domain models; and finally a stage where the descriptive model is refined into a reference model for mobile learning ecosystems. The outcomes of these activities and the analysis of these results provide some fundamental building blocks regarding how to approach the challenge of reuse in mobile learning systems. The proposed reference model can be considered as the first step towards the creation of a common vocabulary that can be used to compare Software Ecosystems within the domain of mobile learning.