PROPOSAL ABSTRACT:
Must be clear and informative. Describe the main issues you plan to address, including goals, methodology and expected outcomes. A good summary facilitates an adequate description and understanding of what you intend to achieve. If selected, this abstract may be published in CONICYT’s web page. The maximum length for this section is 1 page. (Arial or Verdana, font size 10).

Many computer systems have been developed in order to support various types of learning. Some systems support individual learning process, (Carbonell, 1970), while others support collaborative learning processes (Baloian, 2000). Recently, the widespread availability of mobile devices has led to an increased interest in the use of mobile computing to support formal and informal as well as individual and collaborative learning (Guerrero, 2003).

Despite initial success in the development and use of mobile applications, there is still the problem of integrating them more completely and seamlessly with a range of learning activities --whether they are in the classroom, in the field, or at home. The learning material created and/or used while working with one system cannot be easily transferred to another. Technology-supported learning takes place as an isolated event or a special occasion, rather than being integrated with a range of technology-supported activities, follow-ups or content. Because switching from one technology-supported learning system to another is either impossible or takes too much time, teacher-centered models, and those relying on “chalk and talk” often end up prevailing. As a consequence, the computer is still used by students mainly as an archive for electronic documents, and by teachers as a means to present multimedia documents instead of using it as a tool for enabling more advanced and involved forms of learning and collaborating.

This work proposes a set of common frameworks and adaptations (or approaches?) as a first step for integrating computer supported learning activities performed on various scenarios and settings. One such scenario occurs inside the classroom while the teacher is presenting the learning material or the students are working individually or cooperatively. Another situation can arise outside the classroom when the students are working “in the field;” and a third occurs when students are working at their homes. Figure 1 illustrates the cycle of technologically-supported learning scenarios that are key to this project as follows: A) The teacher creates and/or shows the learning material to the students using an electronic blackboard; this can also be done collaboratively with the students. Students can receive this material and work with it on their PCs, Tablet PCs or handhelds and work individually or collaboratively. B) The students go “in the field” to collect data and/or to undertake other field-related learning tasks. They are able to do this using their mobile devices either individually or collaboratively, and are supported in their activities with an ad-hoc network C) Students work on the material, preparing a presentation or homework on their computer at home. Then they present this material to the rest of class in the classroom (thus returning to scenario A).

This integration will be done at several levels, including the
- Data level, for which a common data model for learning materials based on LOM and XML will be applied
- Communication level, for which we will adapt a framework for easily and robustly communicating software running on different type of devices (PCs, PDAs, Tablet PCs, smart phones)
- Human-computer interaction level, for which we will develop a consistent set of interfaces based on gestures for touch sensitive input devices of various characteristics and different sizes

Systems developed on this framework will certainly have more possibilities for integrating with each other and will be used in a more integrated and comprehensive way than most systems developed so far. In this way we are going to try to overcome a problem still faced by computer-based learning support systems: although they are very successfully supporting a certain, often isolated learning activities they can seldom be combined with other systems to enable more consistent and comprehensive support. This rises the costs of using more specialized computer support for all the different learning modes, inside and outside the classroom, since data generated with one system might not be usable in another and both teachers and learners have to work to adapt to a range of systems, interfaces and ways of interacting.. In fact, according to the model of technology adoption of Briggs (1998) and Rogers (2003) an integrated approach may also positively influence adoption of computer support for teaching/learning activities since users will have to learn just one user interface for many situations/scenarios, resulting in a greater comparative technological advantage.