Chapter 5.18
Portals Supporting a Mobile Learning Environment

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INTRODUCTION

Mobile computing gives a learner the ability to engage in learning activities when and where they wish. This may be formal learning, where the learner is a student enrolled on a course in an institution, or informal learning, where they may be engaged in activities such as a visit to an art gallery. This entry emphasises the importance of portals to this learning environment, using the MOBIlearn project as an example.

The MOBIlearn project intends to develop software that supports the use of mobile devices (smartphones, PDAs, Tablet PCs, and laptops with wireless network connection) for various learning scenarios, including noninstitutional learning. (MOBIlearn, 2005)

The project has two primary objectives:

- Develop a methodology for creating mobile learning scenarios and producing learning objects to implement them.
- Develop the technology to deliver the learning objects to users via mobile computing devices such as personal digital assistants, smart phones and tablet computers.

The pedagogic aim of the system is to provide users with the ability to engage in formal, nonformal and informal learning in a personal collaborative virtual learning environment. To this end four scenarios were used as the basis of developing the requirements for the system. These were a formal university course and a related orientation activity, a nonformal health care scenario and an informal scenario based around museums and galleries.

The philosophy behind the MOBIlearn system is that it provides a set of interoperable services.

Services should be able to communicate asynchronously using unstable communication channels (MOBIlearn, 2005). The primary component of the system is the Main Portal component. Central to the Main Portal component was the Portal Service (PO_POS) that represents the single access point for the user to all the services provided by the MOBIlearn system. As well as the Portal Service there are six other services that make up the Main Portal component.

PORTALS AND MOBILE COMPUTING ENVIRONMENTS

The scenarios used to develop the MOBIlearn system are all examples of environments supporting knowledge transfer. Portals act as a repository and transfer tool for that knowledge. This concept of a portal as a knowledge repository and transfer tool has been studied within business domains (Fernandes, Raja, & Austin, 2005). It is also relevant in a learning environment. In MOBIlearn, the users have an online presence and can engage in collaboration that can range from formal to informal. They can access formal content, but also develop their own.

For example, in the MOBIlearn health care domain, one of the main objectives is the sharing of tacit knowledge. Users can discuss case studies, and alternative approaches to specific problems can be evaluated and documented. This is then used and extended in future case studies. In this environment, individual health workers can use the system to advanced their skills, and in a "live" incident, use it for reference and indeed call for backup.

The formal learning domain exemplified by the MBA (Master of Business Administration) expands on existing teaching portals to deliver course material and facilitate individual and collaborative learning. In this scenario, the novel aspect is customising delivery to a variety of mobile devices in use simultaneously in the same course. The system uses the learners profile to deliver an appropriate view of the material.

Both of these applications require a secure access to the portal. In the case of the MBA, there is a fee involved. In the health care scenario, there is an initial requirement that it be restricted to a specific institution. Also in the health care environment, a supervisor would take responsibility for maintaining content and moderating some of the collaborative activities. However, it was thought inappropriate for users who were not health care workers to have access. In both the MBA and health care environments there is a need for providing trusted interactions between learners and providers (Kambourakis, Kontoni, Rouskas, & Gritzalis, 2005).

In the museum domain, the majority of mobile users are engaged in informal learning. The traditional support tool in a museum or gallery is the audio guide. This provides more detailed information about an artefact an individual is interested in. The art gallery, TATE Modern, has introduced a PDA-based multimedia guide, but the devices were loaned by the museum and did not allow collaboration between learners (Proctor & Burton, 2003). MOBIlearn extends the application via portals to allow a variety of personal devices to be used and the ability of users to collaborate on topics of mutual interest.

PEDAGOGIC DESIGN IN A MOBILE LEARNING ENVIRONMENT

The pedagogic basis of the system is the learner who interacts with the mobile learning portal to access learning objects and participate in online activities. Each of the test scenarios has its own learning objects. However, all these learning objects need to be delivered in a flexible way to a variety of devices (Stone, 2003). For example, the interface characteristics of a tablet computer are