Networked PDAs in a Community of Learners

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ABSTRACT
'Knowledge access in distributed training. Mobile opportunities for medical students' ('KNOWMOBILE') is exploring just-in-time functionality with Internet based educational resources on personal digital assistants (PDAs). Intended for life long learning in a variety of health professions, this specific project concentrates on medical students during their assignment to the primary health care sector. The project is conducting experiments in the fall 2001 focusing how students in face-to-face as well as in distributed communities of learners, use the net to access and apply relevant knowledge sources and build collaborative support structures for their training practice. The project is reported on http://www.intermedia.uio.no/prosjekter/knowmobile

KEYWORDS
Net-based learning, Communities of practice, Mobile terminals, Collaborative portal, Medical students

INTRODUCTION
KNOWMOBILE is an exploratory research and development project. The case is the tenth semester of the new curriculum in the medical school at the University of Oslo, when the students are on assignment at local hospitals and general practitioners offices in Southern Norway. The project focuses on how the dispersed learners, in a variety of local contexts, use mobile handheld equipment to access the net for relevant medical knowledge and information. The use of networked PDAs is understood and researched in relation to and as part of collaborative learning activities. The learning communities are emphasized, with a focus on how PDAs could offer access.

MIX MODE COMPUTER SUPPORT FOR COLLABORATIVE LEARNING
Networked computers facilitate *distributed learning*, which includes the *mediation* of learning activities by a constellation of various tools and signs with appropriate pedagogical approaches to collaboration and social interactions. These tools and signs include Internet services, Web-based groupware, multimedia shared spaces, videoconferencing technology, interactive 3D applications on the one hand, and text processing programs, drawing and painting programs, spreadsheet applications on the other. They shape and mediate the goals and courses of actions, increasingly taken place in collaboratively based learning environments. Thus it is important to derive a framework for design from a rich theoretical basis, in order to address various issues and aspects that are important for designing tools and signs that will be useful when introduced in collaborative learning (Fjuk & Smørdal, 2001).

Understanding interaction and collaboration patterns for various net-based learning environments is important in order to use these patterns explicitly in the pedagogical and technical design (Krange et. al., forthcoming). We regard it particularly interesting to combine the use of web and mobile terminals. Development, introduction and engagement in net-based learning activities implies that pedagogical, technological and organizational aspects must be considered a systemic whole. We regard it a goal to contribute to design and implementation of a net-based community of practice, where the students may critically reflect and discuss experiences from their practice.

NET-BASED COMMUNITIES OF PRACTICE
The medical students in this case study are subjected to a work-oriented assignment to the primary health care sector. This implies that students' own experience and problems in their practice should be the main motivation for participation and engagement in the net-based community of practice they relate to. When students and their tutors in cooperation establish a social and net-based community of practice, tutor supported reflections and discussions are possible. According to the literature (Salomon, 1993; Dirckinck-Holmfeld, 1995), successful learning processes in net-based environments are both contributed to and dependent on a series of elements:

- The actors are genuinely interdependent in order to reach their goals.

- They have an individual responsibility for a collective product, the collective process and their own learning.

- The actors must develop a collective product by means of argumentation and negotiation.

However, these elements are not trivial to support by means of text-based and asynchronous communication facilities (such as email and web-based groupware).

EXPERIMENTS IN LOCAL CONTEXTS

The medical students have their assignments in a local hospital for six weeks, then at a general practitioners office for an additional six weeks. All students are part of a distributed group solving two problem-based projects together, using a web-based learning environment. In addition, students are co-located with respect to their hospital, and some share apartment during their assignment. The medical students are offered PDAs (HP Jornadas) with standard software, such as a note-taker, an audio-recorder, email client, and online and offline browsers. We have selected three local contexts for introducing the mobile PDAs. This is for comparing and contrasting user experiences in various communities of practice:

Co-located Community of Learners

Five students co-located to a hospital and sharing an apartment are functioning as a learning community, e.g. discussing their day-to-day experiences over breakfast and dinner. We have introduced networked mobile terminals and IP-zones (wireless access to Internet plus a collective medical portal) where they work and live. This is to facilitate communication within the community of learners, using a high-speed network and always-connected mobile terminals.

Partially Co-located Community of Learners

Five students partly co-located during their assignments, but travelling back to their usual homes. We have introduced mobile terminals for them with GPRS access to the Internet. This is to facilitate communication within a community of learners regardless of location, e.g. from their homes.

Distributed Community of Learners

Eight distributed students, participating in a project group. The group is put together in order to solve two problem-based tasks requiring discussions, hypothesis generation and assessing net-based learning resources. We have introduced mobile terminals that must be synchronized with a desktop computer. This is to investigate their combined support for communication in a distributed learning community.

PROJECT PARTNERS

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