Chapter XVIII
Social Software for Sustaining Interaction, Collaboration, and Learning in Communities of Practice

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ABSTRACT

The École Polytechnique Fédérale de Lausanne is developing a Web 2.0 social software called eLogbook and designed for sustaining interaction, collaboration, and learning in online communities. This chapter describes the 3A model on which eLogbook is based as well as the main services that the latter provides. The proposed social software has several innovative features that distinguish it from other classical online collaboration solutions. It offers a high-level of flexibility and adaptability so that it can fulfill the requirements of various Communities of Practice. It also provides community members with ubiquitous access and awareness through its different interfaces. Finally, eLogbook strengthens usability and acceptability thanks to its personalization and contextualization mechanisms.
INTRODUCTION

Since 2000, the École Polytechnique Fédérale de Lausanne (EPFL) has been deploying eMersion, which is a Web-based environment for sustaining remote and virtual experimentation activities in higher engineering education (Gillet, 2005). The eMersion environment provides students and educators with services covering the main needs for carrying out collaborative hands-on activities such as controlling and enabling access to experimentation resources, storing and sharing experimental data, managing tasks and activities, as well as supporting and monitoring the learning process.

Evaluations performed over four years showed a great acceptance of the eMersion environment by students, teaching assistants, and professors (Nguyen-Ngoc 2004). These results are very encouraging since the use of eMersion is completely optional, in that the students always have the possibility of carrying out their experiments within the university campus in a traditional face-to-face way (Salzmann, Gillet, Scott & Quick 2008).

The evaluations of the eMersion environment demonstrate clearly that the key service for the acceptance of the learning modality and the appropriation of the environment by the students, is a shared electronic notebook called eJournal, which has been introduced to support collaboration and interaction between the members of a learning community (Farkas, Nguyen Ngoc, & Gillet, 2005). This tool allows flexible integration and collaborative usage of laboratory resources to support knowledge building and sharing.

In the context of the Palette European integrated project (palette.ercim.org), the eJournal and the associated features are currently enhanced and extended in order to address the needs of a broader range of online communities, especially communities of practice (CoPs), to effectively support mediated interaction, collaboration, and learning in management, education and engineering. CoPs can be defined as groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (“Because its constituent terms specify each other, the term “Community of practice” should be viewed as a unit” (Wenger, 1998, p. 72). As an example, the students who conduct lab experiments within the control laboratory course taught at EPFL, and the teaching assistants and educators who guide them, form altogether a laboratory-oriented CoP. Another example is ePreP, a non-profit CoP involved in the Palette project. The ePreP CoP gathers educators from French and international institutions, sharing practices for the development of a first higher education cycle preparing students for the competitive entrance exams to the French “Grandes Écoles”, through the use of information and communication technology (ICT). In a similar vein, Medical doctors discussing their practices and sharing cases studies also constitute a CoP.

Extending the eJournal in order to support all types of CoPs is motivated by the fact that the latter have been recognized as effective environments to support learning in professional organizations and educational institutions (La Contora, 2003). In both academic and professional contexts, CoPs represent an interesting alternative to formal and institutional learning and training. CoPs allow bypassing organizations’ boundaries and building virtual communities of actors sharing common interests and goals. While formal learning focuses mainly on information delivery, CoPs focus on participation and collaboration and help members capitalize and share knowledge, acquire collaboration and cooperation skills, and develop argumentation and negotiation capabilities (La Contora, 2003).

This paper describes our work on extending the eJournal concepts to become an innovative framework for sustaining interaction, collaboration, and learning for all types of communities of practice. The first step towards this objective was to develop a generic framework for modeling CoPs structure and behavior. Then, a Web 2.0 applica-