

Chapter 8.11

The eLogBook Framework: Sustaining Interaction, Collaboration, and Learning in Laboratory–Oriented CoPs

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ABSTRACT

Convinced by the important role of CoPs (communities of practice) and the innovative learning modality they offer, the École Polytechnique Fédérale de Lausanne is currently developing a framework to sustain interaction, collaboration, and learning in laboratory-oriented CoPs, namely the eLogBook. This paper describes the services provided by this framework, the 3A model on which it is based, and the main features it presents. The eLogBook presents several innovative

features that make it different from other classical collaboration workspaces. The eLogBook offers a high level of flexibility and adaptability so that it can fit the requirements of various CoPs. It allows CoPs' members to define their own rules, protocols, and vocabularies. The eLogBook also focus on usability and user acceptance thanks to its personalization and contextualization mechanisms. Finally, the eLogBook provides a community's members with ubiquitous services thanks to its multiple views and its advanced awareness services.

INTRODUCTION

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

Evaluations performed over the last 8 semesters' periods showed a great acceptance of the eMersion environment by students, teaching assistants, and professors (Nguyen-Ngoc, Gillet, & Sire, 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.

Our evaluations of the eMersion environment during the last eight semesters 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 the 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 within the learning community.

In the context of the Palette European integrated project (<http://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 communities of practise involved in management, education, and engineering, and to effectively support mediated interaction, col-

laboration, and learning. Laboratory-oriented CoPs are groups of people interacting freely to deepen their knowledge and know-how through interaction and experimentation in a specific domain where laboratory equipment is involved. As an example, educators, teaching assistants, and students involved in a laboratory course form such a community. Researchers and technicians working on shared equipment or studying samples form another one. Teams of engineers involved in collaborative engineering activities are also laboratory-oriented CoPs.

Extending the eJournal in order to support laboratory-oriented CoPs is motivated by the fact that CoPs have been recognized as effective environments to support learning in professional organisations and educational institutions (La Contora, 2003). In both academic and professional context, 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. When formal learning is more focusing on information delivery, CoPs focus on participation and collaboration and help members to capitalize and share knowledge, to develop collaboration and cooperation skills, and to enhance argumentation and negotiation capabilities (La Contora & Mendonca, 2003).

This paper describes our work aiming at extending the eJournal to become an innovative framework for sustaining interaction, collaboration, and learning in laboratory-oriented CoPs. Our work started by a modelling phase where the objective is to propose a model for structure and behaviour of laboratory-oriented CoPs. Then, this model has been implemented as a generic framework called the eLogBook framework. The paper is organised as follows. Section 2 gives a short overview of the eJournal tool and its main services and features. Section 3 presents the 3A model we propose for laboratory-oriented CoPs. The five main concepts of this model, which are Actors, Activities, Assets, Events, and Protocols,

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