Chapter 5
SocialX: An Improved Reputation Based Support to Social Collaborative Learning through Exercise Sharing and Project Teamwork

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ABSTRACT
SocialX is a web application supporting social-collaborative and cooperative aspects of e-learning, such as sharing and reuse of (solutions to) single exercises, and development of projects by group-work and social exchange. Such aspects are supported in the framework of a reputation system, in which learners participate. We describe design and motivational issues of the system, show implementation details and describe a small-scale experimentation that helped evaluating the effectiveness of the system as well as the best lines for further development. In the system, learner's reputation is computed, presented and maintained during her/his interactions with the system. The algorithm to compute reputation can be configured by the teacher, by tuning weights associated to various aspects of the interactions. To enhance collaboration on exercises, we support contextual (to the exercise) micro-forum and FAQs, together with a currency-based concretization of the perceived usefulness of questions/answers. Group responsibilities, peer-assessment and self-evaluation are supported by group-based projects with self/peer-evaluated phases: Different stages of a project are assigned to different groups; a stage-deliverable is both self-evaluated (at submission) and peer-evaluated (by the group receiving it for the next stage).

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INTRODUCTION

Web-based cooperative and collaborative learning can improve e-teaching and e-learning considerably. Traditionally the terms Cooperative and Collaborative bear different meaning; the former appears to be more related to interactions in a well-structured framework, mainly with the aim of producing a deliverable, possibly through plain and planned division of the work activity; the latter is preferably related to more loosely structured interactions, in which possibly clear roles and responsibilities are not directly pre organized (Panitz, 1997; Slavin, 1990). Yet commonalities among the mentioned concepts are extensive: for instance, the learner and the teacher are involved in active and sharing experiences, the teacher is in a role of facilitator, the learners co-works in group activities. For a more comprehensive set of commonalities cf. Kirschner (2001) and Kreijns et al. (2003). We think that, in the web-application we are going to present, those concepts are implied distinctly in some modules and concurrently in some others; so in the following we shall not make distinctions, and use only the term collaborative.

In this paper we describe the design and the present implementation of a system, SocialX, supporting e-learning in a reputation-based social network environment; in such framework, learners participate by interaction, exchange of information, and collaboration over common problems (e.g. mandatory exercises in a subject matter and/or group projects).

In SocialX we try and integrate the social dimension of e-learning (Cheng & Ku, 2009; Kirschner, 2001; Weller, 2007), with the more experienced group dimension (Panitz, 1997; Slavin, 1990). In particular we support the “social dimension” through management of reputation. So, in the next two subsections, we discuss collaborative e-learning and reputation in social-based e-learning, trying to point out the contribution that we hope SocialX can bring into the picture.

Collaborative Learning

Collaborative learning is considered a strong methodology to allow the development of critical thinking in learners, and the acquisition of new knowledge. Moreover it is seen as a way to support the retention of knowledge and its deepening in time (Kreijns et al., 2003). In a collaborative environment, learners can be supported in sharing training experience, combining their skills, and eventually preparing for team-based working activity (Cheng & Ku, 2009). Whereas collaborative learning is usually discussed and applied on small groups, a further aspect of interest is, then, in the vision of e-learning in a social dimension, as a community in which social activities take place and social interaction skills are developed by the participants (Wenger, 1998).

Moreover, the methodologies and technologies, developed to support collaboration environments, are starting to produce effects on the design, and extension, of present e-learning standards (Yu & Chen, 2007), namely in the IMS Learning Design (IMS Learning Design, 2009). In this respect we may note that, as well as the internet has been growing around the key technological factors of openness, robustness and decentralization, e-learning is likely to develop around the same factors (Weller, 2007).

Regarding the model of group-work applied in SocialX, it is intended as to allow that the relational and technical improvements, gained by the participants through usual group-work, can be augmented through social exchange (namely, in the development of a project work, intermediate products are exchanged and peer-evaluated through groups).

Reputation Systems and e-Learning

A reputation system captures (and makes evident to the learner) the contributions the learner is giving to the group, to the class and to the course. A reputation system is both a motivational tool
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