

# Chapter 4

## Social, Personalized Lifelong Learning

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### ABSTRACT

*This chapter discusses a challenging hot topic in the area of Web 2.0 technologies for Lifelong Learning: how to merge such technologies with research on personalization and adaptive e-learning, in order to provide the best learning experience, customized for a specific learner or group of learners, in the context of communities of learning and authoring. The authors of this chapter discuss the most well-known frameworks and then show how an existing framework for personalized e-learning can be extended, in order to allow the specification of the complex new relationships that social aspects bring to e-learning platforms. This is not just about creating learning content, but also about developing new ways of learning. For instance, adaptation does not refer to an individual only, but also to groups, which can be groups of learners, designers or course authors. Their interests, objectives, capabilities, and backgrounds need to be catered to, as well as their group interaction. Furthermore, the boundaries between authors and learners become less distinct in the Web 2.0 context. This chapter presents the theoretical basis for this framework extension, as well as its implementation and evaluation, and concludes by discussing the results and drawing conclusions and interesting pointers for further research.*

### INTRODUCTION

Lifelong learning (Aspin & Chapman, 2000) is a key element of our information society (and

recently knowledge society) through which the potential exists for those who want to learn (Fischer, 2001). Lifelong learning is not restricted just to formal learning in schools and universities, but also throughout our life, at work and at home, and

DOI: 10.4018/978-1-61520-983-5.ch004

more importantly – for the purpose of the current chapter – on the web.

The term “Web 2.0” is attributed both to DiNucci (1999) and O’Reilly (2005), and became more widely known when it was proposed by O’Reilly during the Web 2.0 conference (O’Reilly, 2005). Currently it broadly refers to a web development stage which harnesses the power of the users, in which (for example) web-based communities and social networking sites, wikis, blogs, mashups and folksonomies, are integral parts. The infrastructure of Web 2.0 (or the “Social Web”) arguably also permits new means of lifelong learning, where the learners have not only reading but also writing access (rating, commenting, contributing with items, etc.) to communities, which collaborate in order to achieve specific goals (generally these goals are for the learners to learn and expand their knowledge level). These communities provide not only significant (sometimes also supplementary) learning material but also facilitate information sharing and collaboration between experts and (or) peers (Klamma *et al.*, 2007). The shift towards the Web 2.0 (read/write) concept is changing the way in which content and services are being produced (Tapscott & Williams, 2006), and in lifelong learning this change can be seen as a type of communication in which learners can exchange with their teachers the role of being active and leading the processes of learning and knowledge construction (Roberts, 2005). According to Klamma *et al.* (2007), some of the key factors of Web 2.0 which make it a good opportunity for lifelong learning are as follows.

1. *User generated content.* Web 2.0 is based on the users and the content created by them. Thus, learners can add to the knowledge collection using a constructivist learning approach (Duffy and Jonassen, 1992). A typical Web 2.0 problem is, however, that a lot of content may be produced but quality may be an issue. A constructivist learning approach will only be useful if the construction achieves both understanding and a clear expression of the understanding. This problem can be ameliorated via dynamic, changeable privilege settings, depending on the contribution quality, as we shall show later on.
2. *Various user types and roles.* Users in Web 2.0 can be learners (also referred to in this chapter as students), teachers, authors, administrators, etc. The Web 2.0 context allows for all of these roles to interact with each other, in an ad-hoc, synchronous or asynchronous manner, appropriate for lifelong learning. These roles all contribute to the content and knowledge, in various ways and personalization can be applied to any of these roles, as will be shown later on.
3. *Facilitating collaborative creation, sharing, and commenting on the content.* This moves peer discussion and learning from the synchronous, curriculum-led classroom environments, to the more informal and socially discursive, asynchronous web environments, where learning can take place outside of scheduled times, and thus becomes more amenable for lifelong learning.
4. *Augmenting the content in bottom-up and/or top-down fashion* (Carcillo & Rosati, 2007). In the top-down annotation, the system uses predefined metadata (generally ontologies) to index and tag the created content. In the bottom-up annotation approach, the system allows the users (individually or in groups) to annotate the content with freely chosen tags (keywords). This approach allows for both teacher recommendations (usually top-down), as well as peer and student recommendations (bottom up).
5. *Emerging groups/communities.* This concept identifies a set of individuals who have similar interests, goals, etc. In the context of lifelong learning, where collaborative settings are more frequent than competitive settings, students may recognize that

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