Chapter 8.1

Into the Great Wide Open:
Responsive Learning Environments for Personalised Learning

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ABSTRACT

Personalisation is a key requirement to motivate learners to use learning technology and self-paced content. Whereas most research and technologies focus on personalisation of content, this paper focuses on the personalisation of the tools and platform technologies for learning. When designing a learning environment, most organisations worked in the past on their internal business processes and content but did not focus on what the learner really does with the learning tools the organisation provided to them. Changing the perspective to the user shows, that they create today "around the organisational solutions" their own technology-enhanced learning world using a whole set of technologies: Learning management system (LMS) of the company, learning management system of a further education institution or of a university, different social network platforms, search engines, open web services in the internet like blogs or wikis, and a lot more other applications. Therefore the challenge for organisations today is how they can manage this variety of technologies by also enforcing the creativity and motivation of the users to personalise and individualise their learning environment. This paper proposes a solution by describing an architecture for a responsive and open learning environment. It delivers examples and a procedure how such a solution can be built step-by-step. The approach can be used in schools, higher education institutions, corporations or further education institutions.

INTRODUCTION

Since Sidney Pressey, who was first to use "intelligent" machines for educational purposes in 1926 (Pressey, 1926), and Benjamin Bloom (Bloom, 1984), who argued that the most effective way of teaching is one-on-one tutoring, the idea of personalized tutoring has been in the focus of psychological, pedagogical, and didactic theory and practise, particularly with respect to technology-enhanced learning. Intelligent and adaptive educational systems have attempted to support the learner and the teacher by providing meaningful, relevant, and appropriate educational content. Over the past years, research and development in the area of intelligent and adaptive educational systems has made significant progress and the evolution of such technology – including their psycho-pedagogical foundations – proceeds continuously. In the focus of existing approaches to intelligent and adaptive learning is the content: Adaptivity particularly refers to personalised presentation of contents and adaptive navigation through the contents.

One crucial aspect of personalisation and adaptation to the learners, their preferences and needs is largely untouched by current educational technology: the personalisation of the entire learning environment, its components, tools, and functionalities. The broad range of different demands – digital natives versus technological novices, learners preferring strong guidance versus learners preferring a large degree of freedom, mass-individualisation (in a company) vs. the needs of very specific individuals (e.g., apoplexy patients) – and the dynamics of demands over time, ultimately requires such higher-level approaches to adaptivity and adaptability. Additionally, an appropriate balance between system controlled, self-controlled, and peer/teacher-controlled environments contributes to that requirement.

Moreover, there is a significant change – a "perfect storm" (Vice-Chancellor of the UK Open University) happening in educational technology.

This change is essentially driven by the strong use of learning management systems in corporate as well as higher education environments, but nowadays also driven by Web 2.0-developments, where learners increasingly create their own content (e.g., in WIKIs).

The pattern is of a shift from "push for learning" (the dominance of organisation-driven models of learning) to "pull for learning" (a learner-driven demand for informal and lifelong learning, in which learners control what they learn, how they learn it, and with whom).

Simple peer-to-peer networks between virtual learning environments (VLE) have not solved these questions in the past. There is a need to enable the learner to mashup the services in his/her personal learning environment (either on social network technologies or within collaboration and portal platforms in an enterprise setting). There is a need to integrate the technology into the whole application scenario of corporations or higher education institutions, where the LMS controls the processes in a form, that the learner can adapt and personalize his own scenario in combination with Web 2.0 technologies and other learning resources as well as open content.

This is of particular relevance in the critical lifelong learning transition phases when inhomogeneous groups of learners are treated in a one-size-fits-all way since there is no way to respond to their individual strengths and weaknesses. Even worse, in such transition phases learners are typically required to become accustomed to working with an entirely new VLE.

At this point, promising starting points for innovation in learning technology occur. One of the main question is how to enable the individual learner as well as groups of learners to adapt the learning environment to their very specific needs and, more importantly, how to enable the system to adapt its functionalities and components to the very concrete and individual demands concerning learning environment and learning strategies.

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