

Chapter 5

Mash-Up Personal Learning Environments

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ABSTRACT

In this chapter, the authors formulate a critique on the contemporary models and theories of learning environment design, while at the same time proposing a new approach that puts the learner centre stage. It will be argued that this approach is more apt to explain technology-enhanced learning and is more helpful in guiding (even end-user driven) engineering and maintenance of personalized learning environments. The authors call this new approach a mash-up personal learning environment (MUPPLE) and it is a vision (and prototype) of the future of personalized, networked, and collaborative learning.

INTRODUCTION

Learning environments have probably been designed to facilitate human change ever since the ‘homo habilis’ started using more sophisticated stone tools at the beginning of the Pleistocene some two million years ago – most probably even earlier than that. Since then, however, increasingly larger parts of these learning environments have been transmogrified to be digital and the design of these environments has been subjected to grow-

ingly more conscious decisions. Today not only institutions for formal education such as schools and universities but also most work places and vocational training providers are equipped with at least some kind of *tools* that bring together *people* and content *artifacts* in learning activities to support them in constructing and processing information and knowledge. And, with a serious history of almost half a century, science and practice have been discussing models on how to bring personalization through digital means to these environments.

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Within this chapter, we are looking back at this history of personalized, adaptive learning to formulate a critique on the contemporary models and theories, while at the same time proposing a new approach that puts learners centre stage again. We will argue that this approach is more apt to explain adaptive personalization in technology-enhanced learning and is more helpful in guiding (even end-user driven) engineering and maintenance of personalized learning environments. The approach we propose has been developed within the scope of the European IST project ‘iCamp’ (Kieslinger et al., 2006) and is currently extended in the European IST project ‘ROLE’.

The rest of this chapter is organized as follows. First, we characterize background assumptions and two important research movements that influenced our own proposal, namely personal learning environments and end-user development. Then we elaborate our critique on the contemporary models for personalized adaptive learning. Subsequently, we are going to show that learning environment design is the missing link, able to avoid the flaws of prior adaptation theories in technology-enhanced learning. Therefore, we propose our alternative, i.e. the concept of a mash-up personal learning environment that provides adaptation mechanisms for learning environment construction and maintenance. We demonstrate this approach with a prototypical implementation and a – we think – comprehensible example. Finally, we round up this chapter with possible extensions of this new model and (still) unresolved problems.

BACKGROUND

The mash-up personal learning environment approach is strongly based on three assumptions on which the subsequent approach builds. First, we assume that learning to learn while at the same time learning content is a better approach than just (re-)constructing domain-specific knowledge. In other words, we believe that the acquisition

of social, self, and methodological competence (i.e. transcompetences, also known as rich professional competences) prior to or in addition to content competence is superior to only acquiring content competence (i.e. domain-specific skills, facts, rules, and the like). This is not only justified through the added value of transcompetences, but additionally by the decreasing half-life of domain-specific knowledge and through the challenges imposed by lifelong learning (see also Wild et al., 2009). The competence to adapt both flexibly and quickly to changing context becomes vital especially at the transition between education, training, and work – and in between different work places or job roles. Monitoring ones own competence portfolio, identifying knowledge gaps, and remediating shortcomings planfully with learning are key competences in our modern society. We deliberately say ‘constructing’ as in constructivist theory a ‘transfer’ of knowledge does not exist: knowledge can only be created from within the minds of the learners, though of course influenced on sensory experiences provided by their environment.

Second and consequently, we presuppose that establishing a learning environment, not in the usual sense of a technology-based environment but a network of people, artefacts, and tools (consciously or unconsciously) involved in learning activities, is part of the learning outcomes, not an instructional condition. This is even more important in lifelong learning, where technology constantly innovates and where changes in location, career, or even profession can easily disrupt an existing environment and cause a need for learning and adapting to a new environment. Adaptation strategies go beyond navigational adaptation through content artefacts along a predefined path: for example, some learners may prefer to email an expert instead of reading an online paper; and managing a professional social network may hence become equally important the skills of using a digital library. Adaptation has to take place along individualized activities

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