Chapter 18
Factors Affecting the Design and Development of a Personal Learning Environment: Research on Super-Users

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ABSTRACT
After speculation in literature about the nature of Personal Learning Environments, research in the design and development of PLEs is now in progress. This paper reports on the first phase of the authors’ research on PLE, the identification process of what potential users would consider important components, applications, and tools in a PLE. The methodology included surveying “super-users” on their use of existing tools, applications and systems and their preferences in learning, in order to enhance the development of a PLE and reach a specification that potential learners will find useful and empowering in their learning. The research resulted in suggestions on factors affecting technology use and uptake, human factors and attitudes, and interface design that need to be factored in the design and development of a PLE.

INTRODUCTION
Over the past five years the emergence of interactive social media has influenced the development of learning environments. The Virtual Learning Environment has come to maturity, but has been seen by learning technologists as not capturing the spirit and possibilities that the new media have to offer to enhance the learning process. They are controlled by educational institutions and are subsequently used to support institutional learning.

Each learner is unique and will have a unique learning experience. This has instigated the research and development of a different type
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of learning environment, a Personal Learning Environment (PLE) that is in controlled by the learner. The needs, requirements and experience of each learner using a PLE will be different, which makes planning and development of a PLE that serves as an aid to each possible learner a challenge. An added problem is the openness of the environment and the large number of different dimensions that can be designed and developed. Moreover, PLEs are so new that research in their development has been limited so far.

The authors are part of a team researching and developing a PLE and after scrutinizing the literature about the possible architecture of PLEs, research in the design and development of a PLE is now in progress. This paper will report on the first phase of the research; the identification of what potential users would consider important components, applications and tools in a PLE, and their learning preferences. The methodology included surveying “super-users” on their use of existing tools, applications and systems in order to develop the highest possible PLE specification.

The research paper will set out the research strategy, in addition to the results of the actual research. It will outline methodological concerns, and focus on the usability and functionality of the learning environment, the learner experience, and the minimum set of components required to facilitate quality learning. At the centre of the design and development is the premise that it should be the learner who owns the PLE and who makes the decisions about its use, not an educational institution.

PERSONAL LEARNING ENVIRONMENTS

If the learning environment moves outside the realm of educational institutions, this might affect the learning experience (Bouchard, 2011; Kop, 2010; Weller, 2010). The lack of presence of an educator to aid the learner in his or her critical engagement with resources has for instance been identified as a problem as the Web is not a powerful environment and people will have to adapt to negotiating this environment autonomously. To find the right information and to know how to access required resources, new competencies and abilities will be required from learners. Moreover, the new learning environment requires learners to be active in their learning by editing and producing information themselves in a variety of formats and by communicating and collaborating with others in new ways. People need to have a certain level of creativity and innovative thinking, in addition to feeling competent, confident and comfortable in using ICT applications to be able to do so. Learners need to be flexible, able to adapt to new situations and be able to solve problems that they come across during their learning journey. They will have to be motivated enough to take on new challenges and could use help from the system itself.

Some argue that these skills and competencies will develop while engaging in online communication with others, or via challenging feedback or recommendations through the PLE system itself (Downes, 2009). The system and technology itself, or the activity the learner is involved in, will have to be engaging and interesting enough for the learner to work his or her way through the problems that will undoubtedly come up during the learning journey. People will have to be motivated to use the environment.

Intrinsic motivation has an affective dimension and the literature highlighting the importance of affective aspects of networked learning is growing (Picard et al., 2004; Kop, 2010; Zaharias & Poylymenakou, 2009; Jones & Issroff, 2004). Other issues related to motivation have been highlighted by Lombard and Ditton (1997), and Dron and Anderson (2007) in the form of “presence”. Dron and Anderson (2007) discussed the different levels of presence in different online learning ‘settings’. They made the distinction between learning in ‘groups’, learning on ‘networks’, and learning
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