PERSONAL LEARNING ENVIRONMENTS: IMPLICATIONS AND CHALLENGES

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ABSTRACT

Evolving Web-based technologies make possible the creation of personal learning environments (PLEs) that provide learners with increasing control of their individual learning processes. This paper reviews the concept of PLEs in the literature and suggests some possible implications for academic practice and institutional policy in higher education.

KEYWORDS

personal learning environment – Web 2.0 – mobile technologies – E-learning – social software – Generation Y

INTRODUCTION

Personal Learning Environments (PLEs) have begun to receive considerable attention in formal higher education on account of the philosophical learning values that content-centred Learning Management Systems (LMS) have failed to fulfil. This interest is a direct consequence of the new conceptualisation of the Web, where the learners can interact as part of a social network, and the introduction of the next generation of mobile technologies, enabling learning to occur anywhere, anytime.

The purpose of this paper is to review the learning principles underpinning a PLE, its learning values and conceptualisation in the context of higher education. It is argued that a PLE is very supportive of learning systems including adult learning, informal learning, lifelong learning and workplace learning. Moreover, the concept could be extended to support learning organisations that see knowledge as the most significant resource to remain current and competitive.

The paper is divided in three parts. The first part discusses how the evolution of the Web from Web 1.0 to Web 2.0 and the introduction of social software and mobile computing have been instrumental in the conceptualisation of PLEs. Central to these developments is the creation of social networks that promote the achievement of higher levels of learning with knowledge sharing, collaboration and sustained communication. The second part introduces the concept of a PLE and discusses its links with higher education standards and discipline requirements. The third section suggests some possible implementation implications of a PLE to tertiary education, particularly the new role of teachers in an environment where learners are less teacher dependent and with increasing control of their learning processes.

Web 2.0, social software and mobile technologies

In his book, ‘Weaving the Web’, Tim Berners-Lee (1999), the inventor of the Web, originally envisaged the Web as a semantic space for learning: “My vision was a system in which sharing what you knew or thought should be as easy as learning what someone else knew” (Berners-Lee, 1999). He conceived of the Web as a strong vehicle to augment social interactions amongst participants:

*The Web is more a social creation than a technical one. I designed it for a social effect — to help people work together — and not as a technical toy. The ultimate goal of the Web is to support and improve our web-like existence in the world (p.133).*

Berners-Lee’s vision of sharing knowledge through social interactions has been actualised in E-learning. These days the Web has evolved into a more flexible and dynamic system having the potential to support deep and meaningful learning. This new Web paradigm, known as Web 2.0 or the Semantic Web, is underpinned by the emergence of a new generation of Web-based technologies and standards (Anderson, 2007).

The concept of Web 2.0 has been popularised in Web services and social software such as Google AdSense, Flickr, Wikipedia, Napster, MySpace, Ebay, Amazon, YouTube, Facebook and Second Life amongst others. Here we are dealing with complex data that are created, merged with other forms of data, remixed and presented dynamically. In this new conceptualisation of the Web, the users interact as part of a social network. In fact, Downes (2005) sees Web 2.0 not as a technological breakthrough but as an attitude conveying a social revolution where a very complex knowledge network is possible as originally articulated in Wenger’s communities of practice (Wenger, 1999). These social networks constitute E-learning 2.0 and clear examples of this online educational revolution.
can be seen in the use of social software such as Blogging, wikis, e-Portfolios, instant message and podcasting for the exploration of new teaching and learning dimensions never before imagined (Lorenzo & Ittelson, 2005; Williams & Jacob, 2005).

Wise and Quealy (2006, p.9) argue that Web 2.0 and E-learning 2.0 enable a rich, innovative and genuine higher education environment consistent with the latest techno-social developments (Wise & Quealy, 2006). The online world has changed from a very large multimedia content repository to a truly interactive environment. Here is a new world of pervasive computing where, rather than passively consuming content, surfers have the opportunity of actually doing things. Moreover, this environment can potentially be omnipresent through the portability of mobile technologies like PDAs (personal digital assistants), mobile phones, digital cameras, and games consoles. In this context, learning moves more and more outside of conventional classrooms into a more personalised learning environment where learners can flexibly interact with both peers and teachers, and access multiple resources (Naismith, Lonsdale, Vavoula, & Sharples, 2006).

As discussed later, such technological changes have clear implications in the designing of university courses. Educational designers are facing the challenge of digital native (Prensky, 2001) students who have a huge range of available tools to interact with the subject matter. If social networking is what these students do well, the potential these emerging technologies have in improving teaching and learning is enormous. It is our challenge to understand where and how these technologies can add value to the learning process of our young generation of students.

According to Bryant (2007, p.9) and in the spirit of Tim Berners-Lee, what it is new and exciting in the growing adoption of social software for education is not the technology itself but the social affordances (Bryant, 2007). Technologies come and go and the focus should be more on the way people use them to collaborate, share ideas, create and innovate. Learning is a social activity and historically there has not been a better time to enhance it. Social software enables the construction of the learning webs envisaged by Ivan Illich in his controversial view of a de-schooled society. He argued that people’s knowledge and understanding of life came from conviviality, or ‘…. through the apprenticeship ritual for admission to a street gang, or the initiation to a hospital, newspaper city room, plumber’s shop or insurance office’ (Illich, 1988). Today these learning webs are re-emerging thanks to social networking tools like Weblogs which have the potential to promote dialogue, debate and networking skills. Bryant (2007) elaborates further on this theme arguing that ‘the conversational sense-making and social networking aspects of blogging are what maintain people engaged beyond the motivation simply to write and reflect for personal benefit’ (p.11). Similarly, content creation tools like Wikis have begun to attract considerable attention within the universities on account of their potential in the co-production and editing of students group work. For example, a teacher can ask students to become contributors of a wiki by writing on a specific topic, and then students along with the teacher assess those contributions for effectiveness, thoroughness, comprehensibility and reliability (Prensky, 2007).

Anderson (2007) contends that social software is enabling people to use a more novel way of gathering, sorting and organising information. He says that through social bookmarking or tagging, people can organise and categorise knowledge more in accord to popularity and usage, rather than based on passive methods of classification. Enhanced podcasting is another popular tool used to distribute material over the Internet. In podcasting, students subscribe to a website with the purpose of downloading new digital media automatically which later they can reproduce on portable media players and personal computers.

For Prensky (2007) the explosion of social software and its popularity amongst young people has enormous implications in tertiary education. He talks about the technical clash that has emerged between the so called digital native generation (Generation Y) and the digital immigrants (teachers) (Prensky, 2001). There is a need to redefine the concept of education for part of what our students learn is through hidden curricula. Jenkins (2006) describes this as the ‘learning young people are encountering through the everyday use of digital media and technological spaces’ (Jenkins, 2006). The concern is to ascertain that what our students learn is relevant to them as future professionals and citizens (Twist & Withers, 2007). This problem could be addressed through the development of students’ metacognitive skills as explained later in the paper (Zimmerman, 2002). Most importantly, however, is the development of teachers’ competencies and awareness on the affordances of these new media in higher education.
For some teachers the use of these tools in education is perceived as a good thing, but for others as an extra burden, primarily because they change so rapidly with no time for them to learn and use them effectively in their teaching. The bottom line is that our digital natives are at the forefront on how to use technology and this could be used to leverage learning innovations and practice in higher education. Such a paradox needs to be resolved and Prensky (2007) sheds some light on what can be done. He suggests including students in the development of learning activities using social software they have already mastered. In doing so, the role of a teacher changes to that of an expert who assists students about ‘where and how new technologies can add value in learning’ (p.42).

Clearly the task for us as teachers is to gain a greater understanding of online communities of practice where members interact and learn together within a shared domain of interest, and a personal learning environment (PLE) has the potential to deliver this promise. But what is a PLE, what are its philosophical foundations and possible implications for higher education instructional and learning design; and teachers?

**Personal Learning Environment**

The purpose of this section is to discuss the literature about a theoretical perspective that helps to conceptualise and provide a rationale for a PLE. According to Attwell (2006), the central point behind a PLE is that the learning ownership and management migrates away from institutions to the learner. The clear implication of this self-directed approach is that learners are responsible for the assessment of individual needs, planning of learning activities, creation of learning resources and monitoring of personal progress consistent with the learning goals. While acknowledging the existence of many theoretical frameworks, the andragogical or adult learning theory developed by Knowles (Knowles, Holton, & Swanson, 2005) in the early 1970s is used here to provide a frame for this discussion. As discussed later, Knowles’ analysis of teaching theories has an enormous relevance to the context of PLEs. He advocates an approach to learning characterised by inquiry and autonomy based on six assumptions:

1. The learner’s need to know why to learn something before undertaking it.
2. The learner’s self-concept of being responsible for decision making and living.
3. The role of the learner’s experience in the learning process.
4. The learner’s readiness to learn what is needed in real-life.
5. The learner’s orientation to learning involving task-centred and problem-centred approaches
6. The learner’s motivation to learn driven by internal motives like self-esteem, and job satisfaction (Knowles et al., 2005)

Zimmerman (2002) adds another assumption by saying that the learning environment is selected, structured and created by the learner and that there is a motivation to learning linked to the learner’s beliefs. In this ecosystem there is a predisposition to learn with the learner having a continuous need to learn new knowledge based on prior experiences (Knowles et al., 2005).

In terms of taking control of their individual learning, Knowles, Holton, & Swanson (2005) argue that learners based this decision on their personal goals and that better outcomes are achieved when the learner maintains control throughout the four phases of the learning planning process:

- **Phase 1:** Learners determine their own learning needs so as to achieve their personal goals.
- **Phase 2:** Learners create their own learning strategy and the resources to achieve the learning goals.
- **Phase 3:** Learners implement their own learning strategy and use the learning resources.
- **Phase 4:** Learners evaluate the attainment of the learning goal and the process of reaching it (Knowles et al., 2005)

The implementation, however, of PLEs is not without challenges. Apart from ethical issues of intellectual property, there are institutional issues like curriculum development, content delivery and assessment amongst others that require some rethinking.

Given the nature of a PLE where the learner’s needs are determined by the learner, the challenge for institutions is to make sure that what the student learns meets the disciplinary standards and competences as articulated in the academic programme. This might be achieved through effective feedback on learning outcomes and monitoring of student’s progress (Attwell, 2006). In the case of continual learning, where the employer’s learning needs are linked to the needs of the organisation, performance development provides opportunities for effective feedback and support for those learning needs (Debowski, 2006). It is hardly surprising that the
rapid changing science and technology has created the need for a continuous learning spanning beyond the formal education to remain current, competitive and improve career prospects in the workplace (OECD, 2007). Learning organisations are aware of these changing conditions to the extent that ‘cyclical lifelong learning is not only a norm, but also a culture and an attitude’ (Grace, 2006). Accordingly our students need preparation to become lifelong learners in a knowledge-based economy with plenty of challenges, pressures and demands where the responsibility for learning is a partnership across all organisational units. Senior leaders, leaders, local supervisors and individuals recognise their responsibilities for all aspects of learning to remain competent (Debowski, 2006).

A PLE recognises the self-direction, learning ownership and motivation typical of lifelong learners. In this scenario, for example, a typical PLE could resemble a collection of tools comprising a Mozilla Firefox Web browser, Mozilla Thunderbird email user agent, a Wiki for co-production in a workgroup, an RSS news reader to dynamically update content, a social bookmarking tool, a blog, an online community tool, and a project management tool to manage daily tasks and work projects.

A PLE could be seen as an integral part of higher education without undermining the universal principles of learning. As matter of fact, some universities have already started being active in the use of PLEs. For example, the University of Brighton in UK has formally introduced an online social community for shared academic interest (Community, 2008). Similarly, the University of Bolton is working on a reference model for the definition, characterisation and further implementation of a PLE. The aim is a model that can be used as a focal point to coordinate technological developments in this field (Johnson, Hollins, Wilson, & Liber, 2006).

If a PLE is a good concept, then what should we do for its smooth integration in conventional higher education? Specifically, in which ways can this affect our teaching practices?

**Implications for institutions**

Surprisingly the answer to these questions can be found on previous learning research. An example of this is Vygotsky’s work of the individual development of knowledge through social and cultural interactions with language and dialogue central to cognitive development. Vygotsky (1978) believed that learning was affected by the social context where the learner was embedded. Based on this premise, he introduced the concept of a **Zone of Proximal Development** as the distance between the actual learner’s developmental level and the developmental level the learner can potentially achieve through expert assistance or interaction with other learners (Vygotsky, 1978). The notion of a **Zone of Proximal Development** also lays the foundation for **scaffolding**, where the teacher provides initial support to the learners and then encouragement so that they become more independent and responsible problem solvers. Clearly in a PLE, teachers could participate peripherally as experts or mentors assisting learners to construct their meaning through a sustained communication. Such a dialogue, established and initiated in a face-to-face interaction, can continue virtually in an environment supported by technology (Garrison & Kanuka, 2004).

Knowles, Holton, & Swanson (2005) have a similar view reporting on adult education research. They see the role of a teacher changing from teacher to facilitator of learning. Their view is of a facilitator performing a wide range of functions like ‘process designer and manager’ requiring a specific set of skills like ‘relationship building, needs assessment, involving of students in planning, linking students to learning resources, and encouraging student initiative’ (p.254). As facilitators of learning, teachers could help PLE learners be self-regulated learners and gain the associated metacognitive skills like planning, organising, self-monitoring, self-teaching and self-evaluating (Zimmerman, 2000). For example, as part of a metacognitive strategy, a facilitator could help students develop an electronic portfolio. In fact, the use of electronic portfolios has been used and advocated as a very powerful approach to help students build their profile in line with their professional aspirations. According to Lorenzo and Ittelson (2005), an electronic portfolio promotes the exchange of ideas and feedback between the creator of the portfolio and those who view and interact with it. From a learning perspective, the student’s own and “personal reflection on the work inside an electronic portfolio helps create a meaningful learning experience” (Lorenzo & Ittelson, 2005). Similarly, a facilitator could encourage students to write an electronic reflective journal or blog as a learning space. Williams and Jacob (2005) used this approach in one of their business courses and their quantitative and qualitative analysis of the collected data showed that students were in favour of the continued use of blogs to improve teaching and learning (Williams & Jacob, 2005).
Another aspect of a PLE is that it gives the opportunity to the learning facilitator to also become a learner. In this environment, the combined action amongst the participants can be considered a reciprocal learning process where the learning facilitator is also benefiting from the active exchange of knowledge and reflection typical of a community of learning. Finally, on account of the liberal aspect of PLEs, a major concern amongst academics is the handling of the intellectual property. We need to help our new generation of learners to understand that the active participation in these communities of learning can not exist without a thorough understanding of ethical standards (Twist & Withers, 2007).

CONCLUSION
This paper reviewed the learning principles underpinning a PLE, its learning values and conceptualisation in the context of higher education. It was argued that a PLE has the potential to deliver the promise of online communities of practice where members interact and learn together within a shared domain of interest. The paper also reviewed the latest techno-social developments in social software, social networking, Web 2.0 and mobile computing considered as the driving force behind the implementation of PLEs.

The concept of a PLE is in its earlier stages and its impact in future higher education practices is hard to predict. Given the strength of its learning philosophical values, it is essential to remain alert to its future developments, the smooth integration into our normal academic practices being the most challenging factor.

REFERENCES


