

**THREE PILLARS OF  
EDUCATIONAL TECHNOLOGY:  
LEARNING MANAGEMENT  
SYSTEMS, SOCIAL MEDIA,  
AND PERSONAL LEARNING  
ENVIRONMENTS**

**Part 3: How Personal Learning  
Environments Contribute to Success  
in Teaching and Learning**

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## THREE PILLARS OF EDUCATIONAL TECHNOLOGY

All post-secondary teachers and students use educational technology— whether for classroom-based, blended or fully online learning and teaching.

This three-part series, *Three Pillars of Educational Technology: Learning Management Systems, Social Media, and Personal Learning Environments*, explores the learning management system (LMS), social media, and personal learning environments – and how they might best be used for enhanced teaching and learning.

- The first instalment, *Getting the Most from Learning Management Systems*, looks at the ubiquitous Learning Management System to uncover the many ways this multi-functional tool is used to support teaching and learning, as well as some of the challenges.
- In the second instalment, *How Social Media Support and Expand Teaching and Learning*, a variety of social media and networking applications are explored to highlight their strengths and limitations.
- This final instalment, *How Personal Learning Environments Contribute to Success in Teaching and Learning*, looks at the expanding uses of personal learning environments by students and faculty.

A personal learning environment (PLE) is the set of tools, coupled with the competency to use them, used to navigate, teach, learn, explore, communicate, and amuse ourselves in the online world. The tools of the PLE include LMS systems and social media applications, but they expand beyond these to a personalized collection of informational retrieval, creation, and communication tools by which we both interact in the digital world and develop and maintain our web presence.

Obviously, these tools are used in our formal roles as teachers and students but, more importantly, they are foundational tools upon which our personal network ecology is based. Given the growing importance of digital activity and resources, each of us benefits from improving and enhancing our personal learning environments as tools of lifelong learning.

### How Personal Learning Environments Are Different

Three attributes tend to differentiate PLEs from LMS and social network sites:

- 1.** PLEs are designed by individuals to establish and support their learning goals. Thus, for example, a central tool in almost everyone's PLE is a word processor to create text documents; however, many users add graphics, photo, sound, slideshow tools and website authoring tools to allow for multi-media creation.
- 2.** PLEs are used to communicate with others, beyond those enrolled in a particular course. These begin with e-mail, but often expand to tools for video and audioconferencing, text chatting, blogging, and micro-blogging and many more tools to support one-to-one, one-to-many and many-to-many interactions.
- 3.** PLEs are used to store, organize, select, and retrieve the digital tools and the documents that are created. Increasingly, this storage

and organization capacity is moving from the users' hardware (always susceptible to loss or a crash) to the cloud – susceptible to only potential privacy invasion!

Not many years ago, one thought of a PLE as being the set of software applications that runs on desktops or laptop computers. Today, the PLE extends to a variety of mobile devices and tablets. Tomorrow, it will extend to the Internet of things and a variety of digital devices such as watches, health and activity monitors and remote sensors to enhance the digital lifestyle we choose to create.

Finally, ever more sophisticated analytics and aggregation tools will allow us to automatically monitor and assess our individual PLEs.

## Personal Learning Environments for Faculty

Why should a busy faculty member bother creating and maintaining a high quality personal learning environment? Obviously, this is a task that takes time and, unfortunately, is never fully completed as new technologies are introduced and digital needs and interests change.

The most compelling reason is the effective use of digital tools allow faculty and instructors to be more effective and efficient in both their professional and personal lives. The PLE may also enhance the quality and enjoyment of both personal and professional life, but there is a danger of over complication and a need to be able to switch off, as well as turn on, our PLE.

**Web Identity:** A significant component of a PLE is the digital resources used to develop and share a web presence. Each of us has a digital identity which we can easily glimpse a small piece of by doing a Google search on our own name. Most educators will quickly find a link to their institutional web identity. These are sites maintained by their employer and at least provide an e-mail address for contact, but are more useful when they provide links to CVs, courses taught, interests and areas of expertise.

Further digging in the search engine often finds data on personal identity, including references to activities on community group sites, in local newspapers, newsletters, profiles on social network sites, such as Facebook or LinkedIn, and a host of other references and links.

There is very considerable evidence that this web identity is one of the most important components of a person's social capital. A significant and positive web presence opens individuals to both planned and serendipitous connections with others.

**Connectivist Learning:** Teaching from both constructivist and connectivist learning theory implies teachers and learners actively communicate, share, and demonstrate their learning. PLEs thrive in connectivist contexts where the focus is on developing learning networks consisting of both content (artifacts) and people. PLE serves as the production engine through which content and learning activities are selected and developed, communication with learners and colleagues initiated and sustained, and archival records collected and organized.

**Choosing the Tools:** The choice of PLE tools is based on individual preferences and experiences as well as the course content, learning objectives and the teaching philosophy of the teacher.

## Student PLEs for Learning

In our role as teachers, we need not only to build and effectively use our own PLEs, but we should also be helping students to create their own PLEs. The speed of technological induced change makes it very obvious that students need to be lifelong learners with the capacity and confidence to search, learn, manage, and create their own digital learning environments. By doing so, students take control and ownership of their own learning and the tools that support it.

One useful strategy is to introduce at least one new digital tool in each course. This can range from blogs and wikis, to podcasts, concept mapping, threaded voice discussions, bibliographic tools, graphics and mapping tools, survey and analysis tools and many more.

The introduction of the tool begins with a demonstration of its potential, but also with words of warning that the tool will not be perfect, may require overcoming a frustrating learning curve, and may eventually not produce the desired results. Even if the tool does not find a place in each student's PLE, the active investigation and subsequent reflection on its attributes, defects, and the learning experience of usage provide invaluable lifelong learning lessons.

PLEs develop and grow throughout one's life and early exposure to both successful mastery and critical rejection of the tools are meaningful educational outcomes in any course of study.

## User Control of PLEs

Both students and teachers are interested in the efficacy, ease of use and access to tools they want, often moving beyond uses intended by their developers. This capacity for users to evolve applications for tools is perhaps the greatest potential benefit of their PLE.

The potential of the PLE to serve both current and future learning and performance needs far exceeds that of the LMS. LMS tools are designed with great attention to the existing work patterns of their intended users – PLEs are designed by their owners to easily morph into whatever task, challenge or opportunity arises.

## Looking at the Three Pillars of Educational Technology

To summarize, the effective 21<sup>st</sup> century faculty member or instructor:

- Is able to skillfully use the secure and institutionally protected LMS system at their college or university to provide structured formal teaching and assessment.
- Is able and willing to augment their courses with appropriate social networking that expands the learning context to new places and new participants, as well as scales the temporal boundaries of a single term of study.
- Has a well-developed, yet continually changing, PLE by which they create high quality content, communicate effectively in multiple media and build their personal and professional social capital.

Teachers demonstrate this capacity through their own web presence, in the effective production, selection and maintenance of content and in the learning outcomes achieved by their students as they create and utilize their own PLEs.



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In addition to his extensive research publications, he served as the Director of the Canadian Institute for Distance Education Research and Editor Emeritus with the International Review of Research on Open and Online Learning.

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