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Description
This paper presents a practitioner’s journey of integrating social media for personalizing teaching and learning in a university setting over a four-year period.

Keywords
VLEs, PLEs, Social Media, Teaching, Learning, Technology Integration

Disciplines
Education

Comments
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From VLE to pVLE:
Personalizing Teaching and Learning in a Social Media World

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Abstract: This paper presents a practitioner’s journey of integrating social media for personalizing teaching and learning in a university setting. A critical evaluation was conducted of the technology used, participant surveys, and instructor observations over a four-year period in a teacher preparation program context. The infrastructure that emerged over several iterations was a hybrid VLE-PLE, in effect a personalized Virtual Learning Environment (pVLE). Participants indicated that the technology positively impacted their learning experience and that they would adopt similar tools in their future teaching. Using an action–participatory research design facilitated an incremental approach to adopting new tools, served as a model for professional practice, and afforded a holistic perspective of growth over time. Finally, it was this practitioner’s experience that there is a creative freedom associated with being able to create one’s own eLearning environment using customizable social technologies that is not readily available through institutionalized traditional VLEs.

Introduction

In a highly technological age, educational practice presents both challenges and exciting possibilities. Acquiring expertise in subject matter, pedagogy, and addressing the needs of increasingly diverse learners (Darling-Hammond & Baratz-Snowden, 2005) suddenly expands to include new 21st century standards for technology literacy defined, in an OECD 2003 report, as “the interest, attitude, and ability of individuals to appropriately use digital technology and communication tools to access, manage, integrate, and evaluate information, construct new knowledge, and communicate with others in order to participate effectively in society” (Lennon, et al., OECD, p. 8; see also ISTE NETS).

Attaining this proficiency implies not only a familiarity with the standards but also a functional understanding of what tools to use and how to productively implement them in teaching. In actuality, however, these standards serve only to list a set of competencies; they provide neither direction on how educators are to learn to incorporate new technologies nor an understanding of their inherent complexities—such as the interrelationships between content, users, tools and practices (Koehler & Mishra, 2005). This challenge—specifically, learning how to integrate social media into professional practice and better understand their impact on teaching and learning—is the focus of this work. To that end, this paper presents a practitioner’s four-year journey using action research and participatory design to explore technology tools for professional development, teaching, and learning in a university setting.

VLEs, PLEs, Social Media & Research Design

Virtual Learning Environments (VLEs), such as Blackboard, have emerged as the popular standard eLearning platform in higher education (West et al., 2006) and, as suggested in a UK report, are similarly gaining foothold in K-12 schools (Tolley, 2008). Perhaps the greatest advantage of these VLEs are their ability to provide comprehensive features—e.g., communication, online delivery, curriculum mapping, assessment, and student tracking—within a secure workspace that seamlessly interfaces with the institution’s administrative information system (Hunt et al., 2002). Against the broader context of personalized learning and the social Web, however, they are often perceived as reinforcing hierarchical institution-centric practice; they are neither accessible once a student leaves the institution nor do they permit an instructor to customize the environment beyond certain parameters. This notion is further reinforced by the reality that faculty typically inherit these eLearning systems; they are rarely included in the process of selecting or developing policies for technology integration.
Advancements in Information and Communication Technologies have delivered a new generation of social media defined by Kaplan & Haelin (2010) as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 which allows the creation and exchange of user-generated content." From this, personalized learning environments (PLEs) have emerged as exemplars for how social tools—e.g., blogs, wikis, social networks, and social bookmarking—can be used to support engagement in distributed environments across networks of people, services and resources (Downes, 2007). As this shift towards informal learning and personal customization continues to impact our lives in significant ways, educators are going to have to learn to “…meet the needs of digital native students whose experience in terms of the way they communicate and learn are very different and involve using a wide variety of tools which are not used at school” (Richardson, 2009, p.25). Though the idea of differentiating instruction to meet the needs of diverse learners in varied social contexts is not new to the field of education, actualizing it in a digital context adds a layer of complexity for the novice. Without institutional support to help learn pedagogically sound and effective ways to integrate new technologies, educators will need to rise to the challenge, become their own liberators and take responsibility for learning how to adopt technologies for successful professional development, teaching, and student learning.

This study explores a proactive means towards that end based on a research design that combines action research—an iterative, reflective practice rooted in social research for social change, empowerment, and continual learning (Greenwood & Levin, 2007)—and; participatory design—an approach that attempts to actively involve all stakeholders in the design process to help ensure that the end product meets their needs (CPSR, 2010). My hypothesis is that this integrated approach is an effective strategy for helping educators to devise plans for addressing the challenge of technology integration while also helping to prepare future evidence-based 21st century practitioners.

The Study: A Practitioner’s Journey of Technology Integration

It was in 2006, after being asked to teach my first educational technology course, that I remarked how the technological landscape had shifted and how challenging it is for practitioners to keep up with it. I became strongly motivated to develop a proactive strategy for ongoing professional and teacher development in technology integration that would be useful for any practitioner. The result is, and continues to be, this longitudinal action research study. This report covers three academic cycles from Fall 2007 to June 2010 through multiple instantiations of three different courses. During this time, an Action Research–Participatory Design approach was used to explore three primary social media: Wikis, Web Conferencing, and Google applications.

Participants for this study were comprised of a majority of Masters level pre-service teacher candidates, and a smaller subset of Undergraduate Education Majors and in-service teachers seeking professional development credit. Entry surveys consistently indicated that the students’ experiences with technology varied within the range of novice to competent, with outliers leaning more towards the “technophobe” than expert. Most of the younger students were also using social networking tools such as Facebook or MySpace. It should be noted, that as is common with a mixed method approach, I include myself as a participant and researcher (Creswell, 2009) as I engaged in learning about the technology along with my students. Thus, this study is very much situated within a learning community or constructivist perspective. Permission to conduct the research was obtained from the institutional review board. Candidates were not actively solicited to include their data until the end of the course, however, to ensure that they would not feel that a decision not to participate might impede their progress or standing in the course. All data included in this work have been de-identified to maintain participant anonymity.

At the outset of this study I had some five years experience with First Class, WebCT and Blackboard, the VLEs used at my institutions, and had explored a number of their features. Though I appreciated their functionality as a one-stop course organizer, I had begun to feel constrained by the inability to customize the environment and was becoming aware of the flexible web-based applications offered under the Web 2.0 umbrella. The study was therefore structured around the following objectives:

- To learn about new technologies and develop literacy as a 21st century practitioner.
- To create an online infrastructure or learning environment to support course management, a rich range of learning experiences, collaboration, and community building.
To develop a deeper understanding of the role of technology in practice and its inherent complexities such as the interrelationships between content, users, tools and practices.  

To use the iterative action research process to systematically document, evaluate insights gained, and set future directions for ongoing study.  

To engage students as participants in learning about technology integration for practice.  

These objectives informed a set of research questions and evaluation criteria that were used to guide the investigation. They are summarized in the following table.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Evaluation Criteria</th>
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<tr>
<td>What tools were used to create the online learning environment and what did the technology infrastructure look like?</td>
<td>Map of the evolution of the technology infrastructure</td>
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<tr>
<td>How did participants evaluate their experience using the technology?</td>
<td>Participant questionnaires</td>
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<td>What insights did I gain about the role of technology for professional development, teaching and learning?</td>
<td>Instructor notebook observations</td>
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<td>How effective is an integrated action research/participatory design approach for participant-directed professional and teacher development?</td>
<td>Critical reflection and evaluation</td>
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Table 1. Summary of Research Questions and Evaluation Criteria

Outcomes

1. Technology Infrastructure: Fall 2006–Summer 2010

The following table represents a timeline or evolution of the technology tools that were adopted and the infrastructure that emerged over the identified period. At the point of departure, Blackboard (Bb) was being used in my teaching, but was gradually phased out as Wikis (e.g., Wikispaces, Wetpaint, PBWorks) became more prominently used.

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Table 2. Evolution of Technology Infrastructure from Fall 2006 through Summer 2010

The first iteration of this action research study was implemented in the Spring 2008 Educational Technology course. As the focus was on using action research as an instructional design (see Zijdemans Boudreau, 2008), no data specific for the wiki implementation were collected. Nevertheless, the outcomes of this experience informed a more targeted approach for evaluating the impact of the new technologies—specifically Wikis, Web Conferencing (WC), and Google tools in the subsequent iterations. Formal collection of student input began in 2008 through 2010 [as seen in the white columns].

The migration in 2008 from Wiki to a Google site, which became the course Portal (G-Portal), marked a significant shift in the virtual infrastructure to include the candidates’ Personal Learning Environments. Participants—myself included—created and linked in their own blogs, sites, etc. Over time an unexpected variety of tools and applications were connected to the environment such as: Social bookmarking, Survey monkey, Web conferencing, Screencasting; Second Life, Docstoc, Widgetbox, Download helper, iGoogle; YouTube; Slideshare; and Wordle.

In Spring 2009, a parallel study was initiated on using the G-Portal approach to inform an infrastructure design for a single cohort over the duration of an entire program [Zijdemans Boudreau, 2011 in progress]. By June 2010, the Google portal had evolved into a fully integrated and fluid infrastructure, in effect, a personalized virtual learning environment [pVLE] that provided access to candidates’ PLEs,
communication tools such as web conferencing, Googledocs and Wave, as well as a variety of program
documents, instructors’ course materials, and participants’ work.

The following visuals depict the progression of online learning environments used from 2007
through 2010 that were implemented in different courses. The first three images show the migration from
Blackboard to Wikispaces to an integrated GoogleSite. The fourth image shows the most recent evolution
of the Google Portal that was created to support an entire teacher preparation cohort program.

Figure 1. Evolution of Technology Infrastructure from Spring 2007–Summer 2010

2. Participant Perceptions

Surveys were created to gather both quantitative and qualitative data on the participants’
experiences using the different technology. They consisted of three rated/open-ended questions and three
open-ended questions. Items for the rated questions were:
1. The technology was easy to learn how to use.
2. The technology had a positive impact on my learning experience.
3. I would use this technology in my future teaching.

The open-ended questions asked for elaboration on Questions 1-3 as well as feedback. Questions 4-6
asked for input on the strengths, weaknesses, and suggestions for improving the technology in the future.
Survey results are presented below.

Combined Quantitative Findings: The following chart shows the combined results collected from teacher
candidates who participated in courses using the Wiki, Web Conferencing, and G-Portal technologies from

Figure 2. Combined Participant Technology Survey Results from 2008–2010

Each of the questions scored highest in the Strongly Agree category at 59.3% for Question 3, 50%
for Question 1, and 37.5% for Question 2. A combined score for the Strongly Agree and Agree categories
indicated 77% for Question 1, 71.8% for Question 2, and 67.7% for Question 3. Neutral scores came in at
20.8% for Question 3, 14.5% for Question 2, and 11.4% for Question 1. Finally, combined scores for the
Disagree and Strongly Disagree categories were 13.5% for Question 2 and 11.4% for Questions 1 and 3.

Combined Qualitative Findings: This section presents the results of the open-ended questions for each of
the technology tools. The following table highlights sample excerpts from the participants’ written
responses to the three open-ended survey questions about the technology's strengths, weaknesses, as well as suggestions for future implementation.

<table>
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<tr>
<th>Strengths</th>
<th>Wiki</th>
<th>Web Con</th>
<th>G-Portal</th>
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<td><strong>You can give feedback to classmates and access each other's entries. I like being able to go back and look at what was done.</strong></td>
<td>It's nice to have all the tools together in one place–RSS, blog, picasa, calendar etc. <strong>Easy to use sites.</strong></td>
<td>Personal touch...I really think interaction with your peers, and teacher is invaluable. <strong>In real life you see how people move, behave, and can look them in the eye. I still prefer this mode of building relationships, but find the value in both. There is a time and place for both.</strong> Besides just missing the face to face 'human touch', where you see all body language &amp; lip movement (though I know even that is achievable in web conferencing) <strong>I do not see any other weakness.</strong></td>
<td><strong>Organization.</strong> <strong>Sometimes I felt overwhelmed.</strong> <strong>Too much information.</strong> <strong>Limited # attachments allowed.</strong> <strong>Formatting messes up when you cut &amp; paste into a page</strong> <strong>Bad links</strong> <strong>People do minimum</strong> <strong>Incomplete areas.</strong> <strong>Hard to navigate</strong></td>
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<tr>
<td><strong>It live at a distance away from the University, this really helped me to have the ability to stay home, and still get relevant info. I also really liked that at times my peers physically guided me through discovery, with the ability of taking over the screen. I think this could be a very important feature. The possibilities are limitless.</strong></td>
<td><strong>The opportunity of participating either privately or with everybody had advantages.</strong> Different learning styles were addressed. It is my personality that prefers f2f interaction. But I did find the conferencing engaging, useful and definitely learned through this method.</td>
<td><strong>Too many different types of media, sometimes it gets confusing to me what I have located where...but perhaps because I don’t use G-sites often so when a certain page opens that I’m not familiar with I get confused as to where it came from.</strong> <strong>It takes some time and effort. You have to constantly be checking on it. But it also depends what you plan on using it for. However it is time consuming.</strong></td>
<td><strong>Add short quizzes after sections</strong> <strong>Make more collaborative sharing tool vs. just a reference</strong> <strong>Improve the flow of pages and organize the left side better.</strong> <strong>Continue to keep it simple.</strong> Setting up where information is linked/posted is key to keeping it from being overwhelming (feel like you are going in circles as you click on links that take you back where you were as you try to find the one to take you where you want to go). <strong>Spend enough time at the beginning of the term to be sure the students know how to use the tool. It is easy once you get it - but getting it may take longer for some.</strong></td>
</tr>
<tr>
<td><strong>I would like to implement it as a tool for writing and reflections. I think a Wiki adds authenticity to assignments, making students feel they have an audience larger than the teacher.</strong></td>
<td><strong>I really like how Google sites had a template for a classroom website. It is easy once you get it - but getting it may take longer for some.</strong></td>
<td><strong>People should attempt to share their desktops as well as doing the practice of speaking/listening to make sure their computer will work when it is their turn to present.</strong> <strong>Explain ahead of time that there will be lag within the system and it will be for everyone.</strong></td>
<td><strong>Going through more of what Google has to offer, and playing with more of the tools.</strong> <strong>Learning how to put podcasts onto a blog or site.</strong> <strong>Maybe more options on the site and a printout of what the site has to offer.</strong> Because there was so much, listing the important and more useful add-ons to the site.</td>
</tr>
</tbody>
</table>

Table 3. Sample Excerpts of Qualitative Data for Wiki, Web Conferencing, and Google Portal

Though the Web Conferencing tool had the steepest learning curve it was well received. The initial Wiki implementations for the Educational Psychology courses yielded the most negative responses
related to structure, content, organization, lack of collaborative activities, suggesting that the instructional
design needed to be adjusted. As this feedback was used to improve subsequent iterations—e.g. an increased
the focus on providing resources, a course organizer, and student access for communicating with each other
while they were out in the field—ratings for the wiki increased. The Google Portal design provided many of
the traditional VLE features, such as course document folders, a calendar, and mail. What was dramatically
different, however, was the empowerment of participants to be able to link in their own individual PLEs
and actively engage in the environment design. In this respect, the G-Portal was the more comprehensive,
collaborative, interactive, and fluid environment. Compared to the Wiki and Web conferencing, candidates
stated consistently that they would continue to use this type of tool in the future.

Conclusion

Mapping the technology integration timeline provided a holistic perspective of the progression of
learning that occurred and highlighted a shift in my thinking as the infrastructure evolved into a hybrid
VLE-PLE, what I have termed a personalized VLE (pVLE). At this time, a pVLE is defined as a flexible
virtual infrastructure capable of supporting the needs of the learning community via a network of linked
shared workspaces, resources, communications tools, and individual PLEs. Two unexpected insights were
 gained regarding the participants’ collective attitudes towards technology, teaching, and learning. First,
though students who are ‘digital natives’ may be more agile than their ‘digital immigrant’ counterparts,
most of us tend to be consumers of the tools rather than critical evaluators of them. Secondly, the transition
from to VLE to pVLE requires a conceptual and behavioural shift both on the part of the instructor as well
as the student. For example, the instructor needs to relinquish control and allow students equal access to the
online environment in order for them to be able to fully in engage in collaborative knowledge building and
contribute to the learning community. The students’ earlier negative response to the wiki was, in part,
due to my lack of empowering them to use the technology collaboratively; there was a gap between my ideals
as a constructivist and my actions (i.e. not giving them sufficient ownership). On the other hand, even when
given access or the opportunity to engage in cooperative group activities, students tended to construct and
present their individual work sequentially rather than collaboratively producing integrated work. Thus,
though social media offer a rich capacity for collaboration this does not necessarily mean collaboration
occurs. It would appear that we need time to break old habits and explore new possibilities for how learning
can occur with these tools.

Eliciting participant involvement and feedback became invaluable for incorporating improvements
into subsequent iterations. Using an Action Research–Participatory Design facilitated taking incremental
steps towards developing technological literacy as well as a more critical understanding of how tools can be
used in practice. In 2006, it would have been difficult to predict what the infrastructure might look today as
so much of its evolution has been informed by participant input. I learned that being transparent with my
students and including them in the process of exploration within the context of a learning community
yielded a richer learning experience for everyone.

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