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Description

As increased personalization afforded by social media changes the way we use technology in our daily lives, so too will Education have to rethink virtual learning space [VLS] design for program delivery. This longitudinal study investigates what happens when stakeholders are enlisted in a participatory design process of developing a social media-based VLS for teaching, learning, communication, and access over an entire academic program. A critical analysis indicates that a flexible personalized virtual learning environment [pVLE] emerged over 2½ iterations. Students accessed content, linked PLEs, engaged in learning activities, and interacted with colleagues. The majority indicated that the environment positively impacted their learning. Successfully engaging stakeholders in a collaborative goal of shaping their program experience requires a conceptual shift towards fluid ownership in what have been traditionally institution-centric environments. This challenge needs to be addressed before VLS design can achieve its full potential and engender change in educational practice.

Keywords

personalized learning environments, virtual learning environments, virtual learning space design, personalized virtual learning environments, participatory research, action research

Disciplines

Education

Comments

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Personalizing Virtual Learning Spaces: A Participatory Approach

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Abstract: As increased personalization afforded by social media changes the way we use technology in our daily lives, so too will Education have to rethink virtual learning space [VLS] design for program delivery. This longitudinal study investigates what happens when stakeholders are enlisted in a participatory design process of developing a social media-based VLS for teaching, learning, communication, and access over an entire academic program. A critical analysis indicates that a flexible personalized virtual learning environment [pVLE] emerged over 2½ iterations. Students accessed content, linked PLEs, engaged in learning activities, and interacted with colleagues. The majority indicated that the environment positively impacted their learning. Successfully engaging stakeholders in a collaborative goal of shaping their program experience requires a conceptual shift towards fluid ownership in what have been traditionally institution-centric environments. This challenge needs to be addressed before VLS design can achieve its full potential and engender change in educational practice.

Introduction

Advancements in Information and Communication Technologies have delivered a generation of social media that are challenging educational institutions to reevaluate how Virtual Learning Spaces (VLS) are designed for teaching, learning, communication, program delivery, knowledge development, and content access. As increased personalization and engagement afforded by these social media enables a new social order, education will need to adapt 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). Educators are increasingly reflecting this broader cultural shift through Web 2.0 technology integration in the classroom. At the broader level, however, a need exists to explore the role of social media in virtual learning space design for formal and informal learning over entire academic programs. Bringing about innovation and transformation across the system can only occur if practitioners and students are empowered to move beyond the confines of the traditional face-to-face classroom paradigm (John & Wheeler, 2008).

This study asks the question, “What is the outcome of involving stakeholders in an integrated participatory action research process of creating a social media-based virtual learning space to foster teaching, learning, collaboration, and knowledge development over the duration of an entire program of study?” The following presents lessons learned from exploring this question with teacher candidates and faculty in a Masters Teacher preparation program, from the point of inception in 2009 over two and a half academic program cycles.

Social Media and Virtual Learning Spaces (VLS)

Kaplan & Haelein (2010) define social media 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.” These social tools—e.g., blogs, wikis, social network sites, content communities, immersive worlds, virtual communities and media sharing—have given rise to an unprecedented capacity for engagement between distributed personalized environments across networks of people, services and resources (Atwell, 2007; Downes, 2007).

Effective learning spaces actively engage stakeholders, sustain community, and inspire productive teaching and learning. They support flexibility, accommodate inclusivity, enable collaboration, achieve creativity and deliver efficiency; in the process, they shape and change educational practice (McEETYA 2008). In a 21st century digital context, VLS design blurs the boundaries between face-to-face and virtual environments, embracing a conception of fluid spaces that continuously adapt to the stakeholders’ needs

and their contexts. Oblinger (2006) states, “As we have come to understand more about learners, how people learn, and technology, our notions of effective learning spaces have changed. Increasingly, those spaces are flexible and networked, bringing together formal and informal activities in a seamless environment that acknowledges that learning can occur anyplace, at any time, in either physical or virtual spaces” (p. 14).

In a previous study, exploration in the use of social media in teacher preparation courses revealed their affordance for facilitating a shift from the more traditional Virtual Learning Environment (VLE) to a hybrid VLE-PLE, or personalized VLE (pVLE), defined as a flexible virtual infrastructure that supports the professional learning community via a network of linked shared workspaces, resources, communication tools, and individual PLEs (Zijdemans Boudreau, 2011). Applied to this study context, involving a traditional face-to-face program, the goal was to see how this pVLE design might be used in a program redesign oriented towards blended delivery and sustaining formal and informal learning beyond the walls of the institution.

Action Research and Participatory Design Framework

Action Research focuses on the effects of the researchers’ direct actions of practice within a participatory community with the goal of improving the performance quality of the community around an area of concern (McNiff & Whitehead, 2006). It is an iterative practice of planning, acting, observing, and reflecting that is rooted in social research for social change, empowerment, and continual learning (Greenwood & Levin, 2007). When conducted collaboratively, action research in a professional learning community enables members to develop shared norms, values, and habits of practice that lead to enriched student learning, effective teaching, and a more cohesive school culture (Sagor, 2010).

Participatory design attempts to actively involve all stakeholders in the design process to help ensure that the product meets their needs (CPSR, 2010). Including stakeholders—in this case, students, faculty, staff—puts the focus on design as a process, meeting diverse needs, and continual prototyping rather than the final finished product (Milne, 2006).

An integrated participatory action research approach to social media-based virtual learning space design presents exciting possibilities for engendering institutional change and engaging stakeholders in a journey of authentic, meaningful exploration of what it means to teach and learn in the 21st century. My hypothesis is that this investigation will serve to strengthen the learning community—breaking down traditional barriers between instructor and learner—empower students to take ownership of their learning process, and help instructors to further their professional growth in technology integration while also fulfilling their responsibility to meet the diverse needs of their students.

Study Details

This longitudinal study was initiated in 2009 in an 18-month Masters level teacher preparation program and has been iteratively implemented over 2 ½ academic cycles. This paper reports outcomes for Iteration #1 from 2009 through 2010, Iteration #2 from 2010 through 2011, as well as the mid-point results for Iteration #3 from 2011, which officially ends in 2012.

Teacher candidates informed the learning space development and were anonymously surveyed for their feedback midway and at the end of their program. Instructors in the program were also invited to participate by linking in their respective online course environments or materials to the program infrastructure. My role as program coordinator, instructor, and research participant, or participant observer (Creswell, 2009) was to engage in learning along with participants co-constructing our knowledge over the program period. It is also important to note, that with each subsequent iteration, my teaching load increased from 3 courses to 6 courses to 7 courses respectively, making it increasingly easier to more consistently implement the virtual learning space over the full 18 month program. The overall study objectives were to:

- explore applications of a social media-based VLS design for personalizing teaching, learning, communications, access, knowledge management, and community building across a program;
- develop an understanding of the role of technology in practice and its inherent complexities such as the interrelationships between content, users, tools and practices. (Koehler & Mishra, 2005);
- use the integrated research process to document, evaluate, and set future directions for ongoing study, as well as to enlist stakeholders in the use, design and development of the program VLS.

To that end, a multi-method approach was used to collect and analyze data to address the following questions:

Research Questions	Evaluation Criteria
1. Virtual Learning Space Design: What elements constituted the technology infrastructure? What was the design evolution?	Photographic study (Huntley & Schaller, 2006)
2. Infrastructure Usage: How, when and where did stakeholders use the virtual learning space?	Analytics of technology usage, levels of engagement
3. Participant Perceptions: e.g. How well did the infrastructure support communication, learning, sharing & community?	Participant surveys/ Researcher observations

Table 1. Study Research Questions and Data Collection Instruments

Outcomes

Data collection and analysis are presented in relation to the three primary research foci: Virtual Learning Space Design, Infrastructure usage, and Participant Perceptions.

Virtual Learning Space Design: A photographic study (Huntley & Shaller, 2006) was used as an observational method across time to capture data on the growth and changes in the learning space. The three iteration designs are similar in that they used a GoogleSite as the primary organizing infrastructure and shared features commonly found in traditional VLEs such as: a calendar; an announcements page, a course materials section; a student work area; and external resource links. Iteration #1 used a GoogleGroup which yielded 25/29 student posts from 5/8/08 to 6/18/09, Iteration #2 included a blog which yielded 13/25 student posts and 235 page views from 1/30/10 to 10/26/10, and Iteration #3 used a blog which from 2/5/11 to 8/10/11 has already resulted in 295/311 student posts and 5,962 page views. Increased student use has been a result of more purposeful integration into course work.

An important difference between Iteration #1 and Iterations #2 and #3 was that in the former the student work page contained links to individual journal pages within the site, whereas in Iterations #2 and #3 this page linked to students' individual PLEs, collaborative projects, Prezis, Webquests, and other student generated products. This evolution from the standard VLE to the pVLE infrastructure, heretofore described, marked a significant shift in the progress of this study. Other notable differences in Iterations #2 and #3 included: the creation of a program overview page—with links to individual instructors' course pages [in iteration #1 there were only three courses]; additional wiki resource links; a document cabinet—housing a variety of articles/materials; an advisory sign up page; a professional development page; the use of web-conferencing to support synchronous online sessions; and the addition of visual media such as photos and videos.

Infrastructure Usage: Google analytics were used to track technology usage. The following table compares how the virtual learning infrastructure was used in each iteration.

Iteration #1 1/29/09 – 6/25/10	Iteration #2 1/29/10 – 6/25/11	Iteration #3 1/29/11 – 9/5/11 <i>in progress</i>
105 people visited this site	1,141 people visited this site	496 people visited this site
 536 Visits	 5,946 Visits	 3,379 Visits
 105 Unique Visitors	 1,141 Unique Visitors	 496 Unique Visitors
 2,959 Pageviews	 27,565 Pageviews	 18,265 Pageviews
 5.52 Pages/Visit	 4.64 Pages/Visit	 5.41 Pages/Visit
 00:05:35 Avg. Time on Site	 00:06:07 Avg. Time on Site	 00:06:38 Avg. Time on Site
 16.60% Bounce Rate	 35.22% Bounce Rate	 28.91% Bounce Rate
 19.59% % New Visits	 19.19% % New Visits	 14.21% % New Visits

Table 2. Comparison of VLS Usage in Iterations #1, #2, & #3

There is a marked increase in the number of visits and pageviews between Iterations #1 and #2 and the trend looks favourable toward Iteration #3 finishing even stronger with 3,379 visits and 18,265 pageviews at the mid point. Also worth noting is that 1 of the 536 visits in Iteration #1, 35 of the 5,946 visits in Iteration #2, and 76 of the 3,379 visits in Iteration #3 were done using handheld devices—primarily smart phones, as well as some iPads and an iPod—suggesting an increased interest in mobile accessibility.

Participant Perceptions: Student input was elicited constantly throughout the program and this feedback was used to monitor and adjust the virtual learning space on an ongoing basis. Formal anonymous surveys were also conducted at the mid and exit points in the program. The following table shows a comparison of the final survey results for Iterations #1 and #2. Total N across both iterations equals 50.

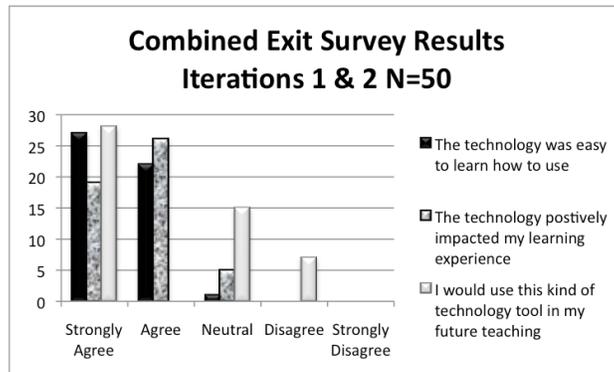


Figure 1. Combined Final Survey of Participants for Iterations #1 and #2

Results indicate consistent findings across both iterations with Questions 1 and 2 leading with majority scores in the Strongly Agree and Agree categories. Question 3 showed the most variation with scores of Strongly Agree [SA]=28; Neutral [N]=15, and Disagree [D]=7. Even so, Question 3 showed improvement from Iteration #1 to #2 as seen in their independent scores of SA=9, N=9, D=5 to SA=19, N=6, D=2 respectively. This trend was also true for Questions 1 and 2 from Iteration #1 to #2 as seen in the scores for Q1 SA=12, A=11 and Q2 SA=4, A=15, N=4 to Q1 SA=15, A=11, N=1 and Q2 SA=15, A=11, N=1 respectively. The following figure shows the midpoint results for Iteration #3

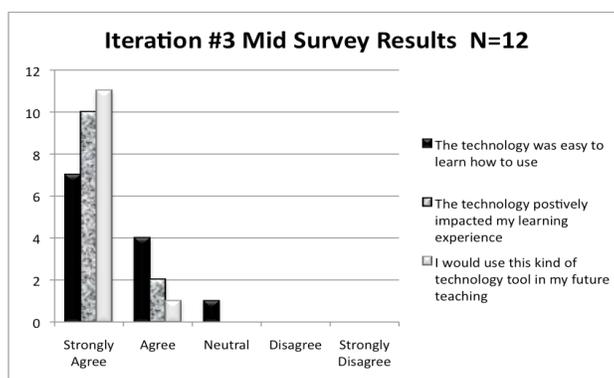


Figure 2. Iteration #2 January 2010 – June 2011 Final Survey of Participants

The outcomes continue to support the previous positive trend. There is still some neutral response to Question 1; however, scores in the Strongly Agree category increased for Question 2 and significantly for Question 3. When asked if they were interested in using the environment for the rest of the program, the candidate responses were Strongly Agree=9 and Agree=3. One candidate stated the value of the portal for, *“Keeping us involved, organized, making the program feel like a holistic whole instead of a bunch of*

disconnected parts like all of my [previous] undergraduate experience felt.”

The following table presents sample excerpts of the qualitative feedback participants provided for Questions 1 and 2 for each of the response categories across all three iterations.

Q 1. The technology was easy to use	Strongly Agree	Iteration#1	We were guided & scaffolded each step. At the beginning we were all in different levels regarding our awareness of technology but this class not only empowered me with the relevant information, it really helped my confidence building.
		Iteration#2	I access the portal most times with my computer, but if I needed to use my phone, I was able to do so as well. I used a Blackberry.
		Iteration#3	I would have been lost without the course portal. It was the central organizer for everything that this program has been for the first 6 months.
	Agree	Iteration#1	It was easy to learn how to use the technology, but it didn't always do what it was supposed to do. However, overall it was a VERY interesting to experience.
		Iteration#2	I am not a fan of only having a digital copy of course requirements, however if I had a hard copy I would not look at the website.
		Iteration#3	At first it seemed chaotic but once I got the hang of things it was my "go to" site for any updates. Very different when you've been used to a paper syllabus.
	Neutral	Iteration#1	N/A
		Iteration#2	I love the portal; it is fantastic having everything accessible in one place!
		Iteration#3	At first I thought it was difficult to find what I needed. After I became use to it I was able to navigate it better. I didn't like that I had to backtrack sometime to get to the home page.
Q 2. The technology positively impacted my learning experience	Strongly Agree	Iteration#1	Even though we had some kinks to work out from time to time, I liked that I heard and could have saw my classmates live, even from far away. I also liked being able to see and be guided through sites that I needed help navigating.
		Iteration#2	I lived on the portal. The portal was like my bible that answered all my questions and gave all the necessary information I needed. Always knew what was expected of me. It has served as a great resource not only to help me stay organized by also has served as a model for how easy it is to build and maintain my own personal websites and use technology for my classes and in teaching more.
		Iteration#3	I really cannot over state how important the portal has been. It has helped keep course requirements, assignments, news, everything that we need to know, in one place. I have never been exposed to anything like this before so it was a chance for me to really get some good knowledge that I haven't had before.
	Agree	Iteration#1	I can finally understand how all that we learned in this class, connect with each other & what it all means
		Iteration#2	It helped me stay connected and be aware of what was going on. It was very nice to be able to meet online and have discussions. I enjoyed being able to be at home and still be "in class". I liked meeting people face-to-face first and then having online classes instead of only online courses.
		Iteration#3	I like being able to go back to the class outline and have resources all in one place that is easy to access. It is also very handy to be able to check on what work we are expected to have done :)
	Neutral	Iteration#1	N/A
		Iteration#2	It worked well to have a place for postings/reflections I was able to access information for class which was nice.
		Iteration#3	N/A

Table 3. Examples of Qualitative Participant Survey Responses for Iterations #1, #2, and #3

Support for the virtual environment was overwhelmingly positive with candidates stating easy one-stop access to information, organization, connecting with others, and resources as the primary reasons.

Conclusion

The principal focus of this longitudinal study is the exploration of social media for personalizing teaching, learning, communications, content access, knowledge development, and community building across an entire program of study. After 2 ½ iterations, findings indicate that an integrated participatory

inquiry-based approach to virtual learning space design supports a personalized Virtual Learning Environment [pVLE] that is adaptable to the unique formal and informal learning needs of the participants. With regard to the more complex interrelationships between users, content, tools, and practices although social media allow individuals to take control of their own learning, successfully engaging stakeholders in a collaborative goal of shaping their program experience requires a conceptual shift towards fluid ownership in what have been traditionally institution-centric environments. This presents a challenge, for instructor and student alike, that needs to be addressed before social media-based virtual learning space design can achieve its full potential and engender change in educational practice. Instructors need to be able to relinquish control, allowing their students more autonomy, while being transparent about their own professional development goals as well as the terms of engagement so that knowledge can be co-constructed within the context of a professional learning community. Students, for their part, need to step up as professional practitioners, sharing responsibility for co-developing the virtual space and actively engaging the learning process to ensure not only that their needs are being met in a timely manner, but also that they are contributing to the learning community. Finally, the integrated participatory action research approach provides an effective means for systematically documenting the process, evaluating insights gained, and setting future directions for ongoing study, in addition to enlisting stakeholders in the use, design, and development of the virtual learning space.

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