The LMS Mirror: School as We Know IT versus School as We Need IT and the Triumph of the Custodial Class

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Abstract

In the context of the future of learning management systems, this paper examines the concept and perception of a learning environment from the classroom to the internet and their relationship to perceptions of teaching and learning. Examples and research, including an example of an activist Web 2.0 pro-social effort, are used to demonstrate the distinction between the current state of teaching and learning, and an emerging model and vision. The implications for necessary future directions to mediate the contrast are discussed.

Keywords: Technology, Learning Management Systems (LMS and CMS), ePortfolios, Personal Learning Environments (PLEs), Learning Environments, Student Agency, Pedagogy. Web 2.0

Space, the Perpetual Frontier

Just before the turn of the century, in a committee planning for a new teaching and learning building, two factions nearly came to blows. The debate was over what a "21st century state of the art" classroom for teaching ought to look like. There was the contingency that advocated for multiple screens for high definition projection, fixed and tiered upholstered seating with clean sight-lines, surround sound, and adjustable lighting with a spot over the podium. A demographic and fiscal forecast of a shrinking budget and rising enrollments reinforced the vision suggesting the future—now—would need to support ever larger classes of eager students.

The other contingency held the view that spaces shape behavior, and engaging those variously prepared students required not bolted chairs and dynamic, media-enhanced lectures, but new models of collaborative learning. The model classroom, that faction argued, required spaces that held round tables and wheels on chairs (wheeled chairs, chairs on wheels, movable chairs). While the committee bickered, a server across campus was ginning up a small course management system (CMS). At that time the CMS supported about 2500 student enrollments, or roughly 2.5% of the institution's student population. The rocket was just lifting off. The new building classroom committee could not have imagined the implications of an application that in less than a decade would experience a 280% student enrollment increase with almost 95% of students in the institution enrolled in at least one class that relied on the application. Further, the system would soon claim enterprise system status, meaning it would require a

cluster server array, remote site back-up, single sign-on, core systems integration including real-time enrollment updates, and gradebook integration with registration systems. It would also, not incidentally, require a budget for licenses alone that, like enrollment increases, would vault over 37 times the initial price tag not counting the personnel costs required to support the expanding system.

Meanwhile back at the classroom committee, uneasy compromise prevailed. Two lecture halls were constructed, the larger with the traditional tiers and tablet chairs. The other lecture hall, also tiered, holds flat tables and chairs that, though fixed, rotate to the same tier row behind to support the occasional conversation. The majority of rooms have rectangular tables and chairs that can, with some effort, be moved. A few rooms have trapezoid tables more conducive to arrangements in the round, but also capable of lining up in rows. All rooms have a front with a spotlight on the podium, stereo sound, and a projector screen that lowers.

A month after the building opened to classes, however, advocates of collaborative learning in the round were surprised and disheartened to find that every room was, at the end of the day, arranged in rows facing front.

One day, a week or two later, while wandering through the halls, the reason for the triumph of straight rows in the state-of-the-art teaching facility was revealed. A bold, red-inked double-underlined warning was spotted on the whiteboard of every classroom:

> Please leave chairs in the arranged rows as you have found them!
>
> Thanks—the custodian.

Deference to maintenance is reasonable, and it was not puzzling why a custodian would insist that a classroom remain in rows. Facilitating the hygiene of the learning space makes sense in context, but when the need to sweep out a room and keep it tidy compromises the potential of effective pedagogy, there's a problem. More puzzling was the role of the faculty. The same faculty who cry academic freedom at any suggestion that they must adopt new strategies for teaching were apparently willing to comply when the custodian insisted that all classrooms in the building toe the line.

Of course, the tacit acceptance was more about what the janitor *expected* than it was about encroachment upon one's teaching. The model the custodian understands to be "teaching" maps remarkably well to the one in the minds of faculty and students. Flower and Hayes argued twenty years ago that what ultimately shapes our goals is the breadth and depth of our mental models. "People only solve the problem they give themselves to solve" (1988, p. 93). A few years later Bereiter and Scardmaglia (1993) added to our understanding when, after extensive research on the development of teachers, they identified the cross roads that new teachers encountered a short time into their careers. At that point, educators choose either the messy, difficult path that leads to expertise, or they opt for problem minimization strategies. The confluence of constrained mental models of teaching and learning, plus forces that privilege problem-minimizing strategies over the messy engagement of deeper teaching and learning have trumped, for now, the potential of the building's innovative, collaborative spaces.

Mindspace in Practice

While we worked to rescind the janitor's mandate and recapture the learning spaces lost in the custodial coup, the greater forces of hygiene over substance were asserting their dominance in two other arenas. One was in Washington State University's (WSU's) effort to assess and promote critical thinking. That story, told elsewhere (Brown, 2004), reports our discovery, as others have (Trosset, 1991; Baxter-Magolda, 1992), of student performance using the WSU Critical Thinking Project (http://wsuctproject.wsu.edu/). Though we were making significant gains, we were not making gains that consistently reached the level of competence as determined by the many faculty who participated in the project over the years. We had aspired to achieve a level of student performance recently validated in collaboration with employers who tended to rate student work well below professional entry level readiness. The challenge is not isolated at our institution. The recent American Association of Colleges

& Universities' survey (2007) reveals an ongoing dissatisfaction with the critical thinking skills exhibited by college graduates surveyed employers hire.

To get a better understanding of the nature of the challenge, we had the idea of assessing assignments to determine the extent to which those assignments embodied the expectation that students think critically. The reliability of the assessment was more pronounced than the reliability that faculty attained rating student work. The outcome of that rating was that of 23 assignments given, the mean rating of what students were asked to do did not consistently reflect expectations that students demonstrate competent critical thinking. Instead, we discovered that the majority of assignments that make up students' experience with the curriculum don't ask them to think, but to recapitulate lectures, text, or both.

The Triumph of Manners—Into the Ether

It was at about the same time the campus was discovering ways custodians were recasting spaces, and assignments were valuing mannerly recapitulation, that we were developing a homegrown online learning system. The campus held fast to the belief that manners adapt with time and online spaces might help shape new ways to think about teaching and learning.

Until the EDUCAUSE Center for Applied Research published Morgan's (2003) watershed study, local beliefs remained unchallenged. Morgan's study reported how course management systems (CMS) were actually being used even as course management systems across the country were growing in server rooms, quietly gobbling up resources and gaining enormous popularity across campuses nation-wide. To what end? Morgan reported:

> Faculty described their initial adoption of a CMS as being driven primarily by the need to address a particular pedagogical challenge. When probing below the surface, however, it seems that most of these needs have less to do with pedagogy, per se, and more to do with class management. Faculty adopt course management systems principally to manage the more mundane tasks associated with teaching" (Morgan, 2003, p. 2).

Further, even the 59% reporting in Morgan's study that the CMS increased their communication with students, communicated in ways that, Morgan observed; "was broadcast in nature, from the faculty member to the student" (2003, p. 4). The modest pedagogical gains faculty achieved with the adoption of course management systems, as Morgan describes it, was an *accidental pedagogy* attributable to the need to map teaching to the learning management system environment. In particular, Morgan reports, faculty were gaining, at least one key principle of good practice - increased feedback to students (Chickering & Gamson, 1987) - through the use of the online gradebook. This was a gain, Morgan reports, that "alters" faculty relationships with students and students with their own work" (2003, p. 4).

Manners in Mindspace—the Next Generation

While technologies march forward, pedagogies, it seems, do not. As part of the International/National Coalition for research in ePortfolios, WSU recently developed and deployed a survey to examine faculty teaching epistemologies relative to their approach to new technologies and ePortfolios in particular (Brown, et al, in preparation).

In that study, we have, first, confirmed that the kinds of faculty teaching dispositions and teaching beliefs that are learner and learning-centered map to teaching strategies that value and promote student agency. Student agency, it seems clear, is essential if students are to avail themselves of the myriad opportunities that learning in a Web 2.0 world presents. The categories of learner and learning-centered were constructed to discern, among other factors, the particular faculty beliefs and companion practices associated with either promoting or constraining student agency. Teacher-centered approaches, for instance, reflect beliefs and practices that indicate that instructors will assume responsibility for determining what their students need to know, how representation of that knowing should be presented, and how that knowing will be assessed. Learner-centered approaches are reflected in practices in which the instructor still defines largely what needs to be learned, but *how* that learning takes place and how it might be represented are things students are increasingly empowered to determine. Learning-centered

approaches, finally, acknowledge that the world is changing, and precisely what an individual will need to know cannot be determined solely by an instructor. Students should be empowered to have a significant role in how learning might best be represented, the parameters of that learning, and what is to be learned. This paradigm also requires students' agency if understanding is to be relevant and sustainable. In other words, the constructs in the WSU study were designed expressly to map to the potential of Web 2.0, the implications of learning in a world in which learning is largely ill-structured, and where that learning is difficult to manage. The study did not attempt to categorize faculty; rather, it was designed to identify clusters of like perspectives—fully recognizing that in different contexts an individual instructor would probably embrace two or even three different sets of strategies and beliefs.

As a matter of formulating a valid survey, the effort was remarkably successful. The factor structure confirmed that that statistically the constructs were exceptionally sound. The results, however, were not quite so encouraging. The teaching beliefs, dispositions, and practices from those who responded to our survey reflected understanding, willingness, and readiness to teach in a free range or open Web environment, but these beliefs are not reflected by the majority. In fact there is good reason to suspect that those who did not respond to our survey—66% of our randomly invited sample—hold views that are even less likely to effectively capitalize on the potential of the Web or a next generation virtual learning space. In particular, we found a disconcerting inverse correlation between faculty who hold traditional teacher-centered beliefs and their acknowledgement of the value of recognizing and responding to student learning growth—a construct that confirmed that individual students may have reasons for learning beyond the context of the individual class. It is reasonable to conjecture, we think, that this finding is not evidence of some kind of rampant contempt or ill-will for students, but yet another manifestation of task representation and problem minimization. Faculty teach their subject matter, not their students. Further, faculty are not alone in this belief. In recent conversations with a student president, when asked about what was most on students' minds, the young president reported a growing concern that the institutional writing portfolio requirement was perceived as an undue intrusion on students' time. The faculty/student disengagement compact is alive and well—*I won't bother you as long as you don't bother me* (Kuh, 2003).

So now the ePortfolio becomes the next technology that could have done much to promote and deepen learning, and like the many technologies that have preceded and complement ePortfolios with similar transformative potential, they already appear to be in the process of being subverted into transpositional purposes. As Batson (2007) laments, ePortfolios are being "hijacked" by accountability pressures and transmuted into "Assessment Management Systems."

Even as we try to imagine the next generation learning management system, the story repeatedly reminds us that it's not about tools. One need not look far to see the seemingly systematic subordination of powerful new tools to the stifling purposes of custodial hygiene. The following vision was culled from an alumni newsletter by a faculty member who predicts online teaching will become the "only" way courses are delivered to students. He teaches with a combination of a common LMS and uses the Second Life ™ virtual world, noting:

> I created a class site with "air chairs," couches, rugs, and a large screen to show my PowerPoint slides. I have real-time, synchronous discussions about the topic of the week. Programs like Second Life will eventually be the only way we will communicate. Because of global warming, a nuclear holocaust, international wars for water and/or oil, some other natural or human-created catastrophe, or a combination of all, it will be unsafe for anyone to venture outside their protective housing. Second Life (and programs like it) will be the only way we will be able to interact socially and the only way students will take university courses" (Lester, 2008, p 8).

Similarly, at a conference recently a presenter demonstrated another project developed in Second Life™. The use of the environment focused on teaching statistics. The design included individual Second Life™ cubicles where each student could fly in and peruse the PowerPoint and then take, still in Second Life™, a multiple choice quiz. In other words, technology, like "PowerPoint," as Stephen Downes (2005) has observed, "is not a gateway drug" (http://www.downes.ca/cgi-bin/page.cgi?post=32748).

The Way Out of the Box

Of course the next generation learning system already exists. The Internet and the many generative and communicative applications that make up the World Wide Web are, for most of us, as readily available as Dorothy's ruby slippers. However, recognition that the ultimate learning management system is within our reach, very much like Dorothy's Kansas home, remains as elusive as it is ubiquitous.

Recently a doctoral student approached WSU's Center for Teaching, Learning, & Technology (CTLT) for help identifying or building an online application to help her communicate with her dissertation committee. Margo understood her challenge as one that was essentially hygienic—a way to manage time and space to communicate with busy faculty.

What unfolded has become something entirely different. While Margo had come to the University to study women activists with the intent to eventually become one, the collaboration, possibility, and opportunity coalesced to transform her focus from an academic exercise into an authentic personal challenge and a community responsibility.

Margo's home is not Kansas but an impoverished community that straddles the US- Mexican border. As Margo was being introduced into the panoply of technologies available for managing the logistical challenges of her dissertation, her family lands were being sized up as a site for a border fence. Margo posted an urgent call for help on a highly read blog. She began gathering resources and organizing the community, including elders who had been without political voice. In a very short time, a cyber-phalanx of artists, writers, and activists pulled together and induced a legal team to file a suit against the Federal Government. The reporter who wrote the story had her computer confiscated and was subpoenaed by Homeland Security. Margo migrated the work into the Internet cloud. "Make it public" became the mantra. Strength in transparency. The community distributed documents, poetry, video, and song using Flickr, YouTube, Facebook, Sharepoint and Blogger. They tagged and linked documents, dramatically elevating their Google rank. A United Nations inquiry was called. Margo, engaging an authentic problem, has evinced invaluable authentic assessment.

Meanwhile, however, Margo was concerned about her academic responsibilities. She said, "I told my committee that I was sorry my work on the border was taking so much time away from my dissertation." However, she added, "One of the committee members said, 'No, I think this is your dissertation' and the others nodded in agreement." Margo was relieved. She said, "This ePortfolio is my dissertation. This is my publication. This is what I want to do. I am drained by the traditional academic navel gazing. I have jumped through their hoops… I've published in 3 major journals… they know I can write. Now I want to do this. This is real… this is out there… I'm connecting" (2008, Personal Communication).

Keeping a Lid on IT

Margo's story is not an isolated story, and there are innumerable others that both implicitly and explicitly challenge a vision of education that manacles student learners into cyber-cubicles. George Hotz cracked the Apple iPhone by leveraging Web 2.0 and a global community (Hotz, 2007). More and more we hear stories of job applicants who arrive at the interview to discover the employer has already perused her ePortfolio and is prepared to offer the job. Students are breaking out of their managed course boxes even as the world is creeping in. Students are generating evidence of learning that is now and will increasingly be rendered in Web 2.0 applications outside of the university. They are developing incipient visual literacies in Flickr, communication skills in Facebook, team and organizational skills in Basecamp, and they are developing new kinds of learning in virtual worlds and in games that we have only begun to imagine.

Granted, as we wrestle with the implications of embracing and enhancing new literacies, we will need new tools for helping with the necessary business of grading, reporting, and credentialing. In the ePortfolio models that successfully resist coercion and hijacking, sometimes called Personal Learning Environments or PLEs, we see the dawning of a new learning management system. In these models, like Margo's story, it is the student and the learning, not the course, which is (rightly) central to the activity, to the learning. That student shares her work, now becoming something fully owned by the student, with the community of her choosing and her making.

In this new world where a full 50% of students are swirling, it is the institution that increasingly finds it necessary to compete for the interest of the learner. Teacher and institutional-centered models will not perish in the short-run, but the global demands for innovation threaten the relevance of traditionally managed learning and the systems that support that constraining view.

In emerging models where learning is in the center, there remains great potential value for effective faculty mentoring. The custodial element in even Margo's saga is not incidental, and Margo's enlightened faculty advisors and their administrative participation in the work and in her story represent a pivotal example not only for supporting students like Margo but for upholding the value and even the relevance of the institution. Scaling such efforts may be problematic, even when it is recognized that learners need not lead their own resistance movements to engage in the innumerable authentic learning opportunities populating the web. Many progressive educators are now conducting authentic learning using Wikis, blogs, open-source ePortfolios and PLES, but in scaling these efforts it is critical to maintain and elevate the quality and function of credentialing, code for engaging and responding to the larger community and public.

How does a faculty member track artifacts of a student's learning if those artifacts are being created and stored in situ all across the Internet? New harvesting tools will need to emerge in order to support the Web 2.0, free-range, student-centered model, new strategies for accessing, assessing, and providing feedback. It was, as Morgan (2003) noted, the online gradebook after all that "alters faculty relationships with students and students with their own work" (2004, p 4). Rather than fight the tide, by co-opting the energy that is the social network, we acknowledge the hygienic imperative that defines much of the educational enterprise. Rather than focus on a next generation of learning management systems that compete with the developments of Web 2.0, the successful application that will triumph will be a gradebook that accommodates shifting and protean venues of feedback—including the mundane. As any lifeguard learns early, don't swim against a rip tide. Swim along with it to the extent that it you can harness its force.

A harvesting gradebook will similarly need to support disparate activities and the outcomes associated with those activities. As students swirl, the notion of curricular coherence is changing, and one important way to think about meeting the changing world is to focus on—and therefore establish ways to record--outcomes or mastery. The *student-in-the-center ePortfolio* or PLE and the harvesting gradebook need to respond to the shift in which learning, not seat-time, is held constant (Shulman, 2007).

Ultimately the gradebook, for better or for worse, will be the *killer application* in education. One might argue that self-assessment, when balanced, is or ought to be the ultimate goal of an assessment regimen, but to achieve that end, we need to expand and deepen the discussion of what assessment means. The successful gradebook will be recognized as a communication tool that affords faculty and students with a variety of communication options—faculty to student, faculty to groups of students. The ensuing instructional challenge will be to guide the tool discussion toward issues related to understanding the meanings and nuances of the outcomes and what quality performance looks like. How to transform the traditional teaching culture too often fixated on rules and hygiene and to focus instead on the meaning and application of shared criteria is the elephant playing tic-tac-toe in the middle of the room.

The challenge is not trivial—affording agency for learning to the student. In a learning- centered Web 2.0 ePortfolio world, the student view also needs to provide support for students to reflect upon and organize their own perceptions of the course and their learning. This includes media annotation tools that help students reflect on the way their performance has been assessed. What students choose to share with their mentors will, we hope, be something they consider carefully, a key outcome in its own right, and something—like all outcomes—that will be increasingly informed by discussion about the meaning and application of assessment criteria.

None of the previous discussions preclude the need for a gradebook to address the basic requirements, or basic faculty individuality and individual needs. For faculty and the institutions they represent, the ideal gradebook recognizes that faculty usually have their own spreadsheet systems, and the gradebook needs to adapt to their usage as well as to those of the institution, including import and export of grades.

The gradebook will also have to be responsive to complex calculations and to the myriad ways faculty weigh and assess work. When student performance is assessed against absolute or mastery-based criteria, for instance one that uses a six point scale in which six is mastery, a performance of 3 at the first attempt may be an "A" but by the final attempt the same performance, having demonstrated no progress, may merit a "C." A Web 2.0 gradebook will need to be able to reflect evolution for all stakeholders.

Similarly and finally, just as faculty will want to have a gradebook with the capacity to assess performance over time, a student's learning portfolio would also need to aggregate performance over time. Documenting learning evolution would create a rich transcript of one's academic life as a prelude to the dynamic, living resume of one's working life and provide an ongoing reflective venue for one's ceaseless learning.

As undergraduates, like more than half of students today, each of the authors, by various degree *swirled*. We look for our education, for ourselves, in many places and, more and more often, in many institutions. The undergraduate education we pursued represents an interesting blend of large land-grant institutions, small urban schools, and small, rural, common and prestigious research institutions.

We learned two important things. First, much of school, for us as for the majority of students who now swirl, was about navigating technicalities and bureaucracies of the learning timelines and spaces. We did in our sneakers what students now do with high speed connections. The second lesson is analogous to the point of the exploration of this chapter—the search for a learning space reflects our inner turbulence. It culminates, as Margo's story indicates and as Seely-Brown advocates (2007), not in our learning about, but in learning to be. What we come to understand, at last, is that what we are seeking—a place to learn that maps *to* our imagination—*is* our imagination. Learning happens, if it happens at all, in one's head. The only learning management system that matters, in the end, is the one that happens in the heart and mind of the learner. As Ken Kesey might say, striking a match may or may not be a revolutionary act, depending upon the heart of the person striking the match. Every technology application hosted by an institution or available on the web can be a technical and bureaucratic obstacle course, or it can be a launch pad into the learning imagination.

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