

***** On the Internet *****

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Learner-centered Do-it-yourself Learning Management Systems

Vance Stevens
English Teacher Coordinator, HCT/CERT Naval College
<vankestev@gmail.com

Abstract

This paper addresses situations in which teachers are expected to develop viable courses quickly as well as make use of available technological resources, often on minimal budgets. Flexibility and creativity are achieved with DIYLMS (do it yourself LMS) using a mashup of Web 2.0 tools, such as a wiki portal for course information and links, Google Docs for student writing and feedback, Google Hangout for live sessions, Skype group chat for synchronous and asynchronous communication, and blogging as a means for students to showcase their work and enter into conversations about it.

LMS and CMS

Not surprisingly, learning management systems (LMSs) are often used by teachers to help manage student learning. I have been using them for a long time myself, one of my first being Nicenet <<http://nicenet.net/>>. One of the better known is Blackboard (Bb), a platform that is expensive for many users, but one that is an effective means of allowing teachers to set up courses, populate them with content and features such as forums and links to resources both inside and outside Blackboard, and then allow the input of student work and record marks according to a specified assessment strategy. More recently I have been managing classes using Moodle, a free and open source LMS which includes many of the same features as Blackboard.

Learning management systems are distinct from content management systems (CMS). A CMS is a system for storing content in the form of web artifacts where they can be made accessible to learners. Wikis and blogs can be used as CMSs; examples of these include Wordpress, PBWorks, and Posterous. Drupal and Joomla are both examples of open source CMSs with powerful and attractive features for content storage and management. However CMSs differs from LMSs in that CMSs have no means of tracking student performance, such as grade reports.

The distinction can be a fine one. For example, Nicenet does not provide a gradebook tool. However, Nicenet has many features that distinguish it from a CMS. Goldsmith (2010) lists these as tools for teachers to “create an online course space, enroll a group of students, post documents and course reading, create discussion conferences, add links to other resources and publish a class schedule. In other words, the basics for an online class.” The distinction is not consistent among even respected colleagues. Lane

(2009) writes about disadvantages of CMS, though she includes Moodle and other LMS products in her examples.

Why DIYLMS?

Even when teachers have free access to one of the more common LMS tools, such as Moodle, or Blackboard by virtue of the license for its use being paid for by their institution or using the free version hosted by Blackboard.com, they sometimes find these complicated and constraining. That is, the complexity of Bb often results in teachers learning just enough of a subset of the program to be able to house their courses on Bb, but they might not learn enough of the advanced features to break free from a template that makes Bb courses appear redundantly similar.

Many teachers and their institutions paying the bills question whether what results from Bb is worth the expense, considering there are free and open source alternatives. One of the most commonly used free alternatives is Moodle. For teachers using basic features of Bb, Moodle can accomplish much the same thing. It can store content and allow students to upload assignments, and it will manage learning as well by weighting marks according to an assessment strategy. In addition to its similarities, since Moodle is open source, it is free to set up, and it allows developers to download content into compressed (.zip) files for easy restoration on other Moodle servers. As Moodles are often run on a collective basis, it is easier for users to have administration rights and be able to manage available features and resolve problems with student logons, whereas with Bb this kind of thing is often managed through an IT department, whose staff may approach systems management differently from what users may be expecting.

Even worse are the pedagogical implications of reliance on one-stop LMS. To varying degrees, both Bb and Moodle put course developers into a straitjacket when they call into play the same features over and over. This is not to say that neither program allows imaginative development, but it's difficult for lay teachers to break away from templates that look alike and do exactly what they purport to do, manage learning. The problem is that too often, it's the LMS that manages the learning and not the teacher as course designer. Lane (2009) calls this "insidious pedagogy."

Fortunately, now that we're well into the read-write century (Lessig, 2008), there are Web 2.0 antidotes to this. The most used features of LMS programs, storage of content, interaction in forums, and handling submission of student work and providing appropriate feedback, can be accomplished in a variety of freely available Web 2.0 programs that can in some ways do each of these jobs better, and with more flexibility for learners than what Siemens (2004) calls "'locked-down, do-it-our-way' platforms."

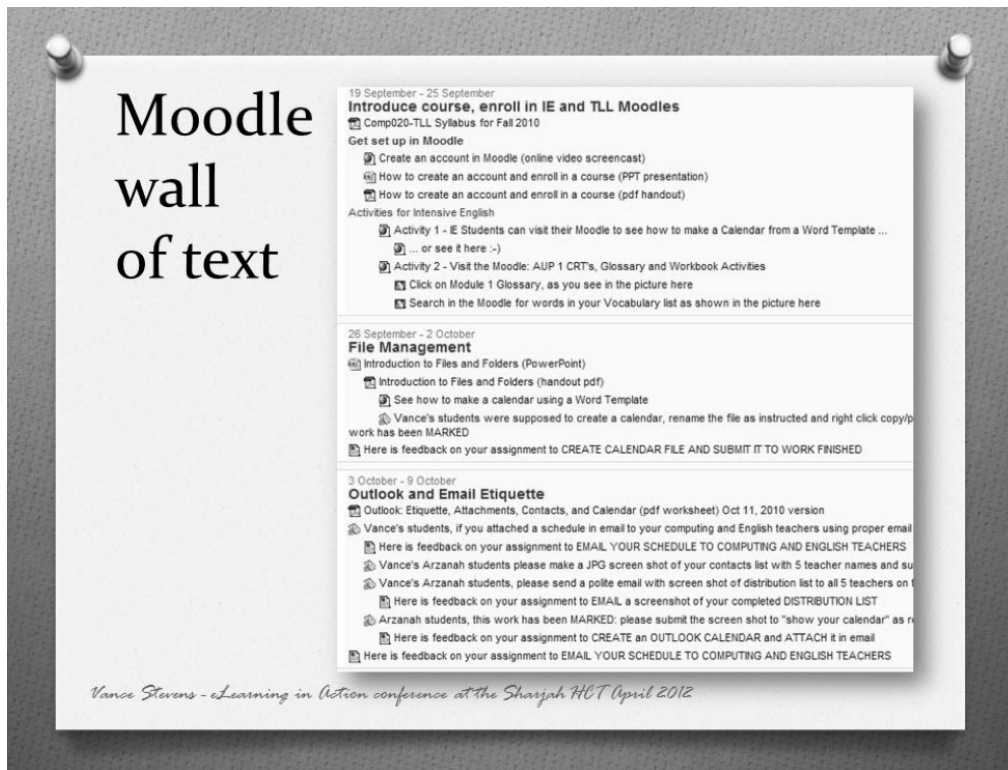


Figure 1. Moodle wall of text

Some people might not warm to the idea of doing in several programs what learning management systems typically do in one. However, there are advantages to using Web 2.0 tools; for example, ease of use and control over tailoring the learning environment that teachers have as administrators of their own class wikis and blogs. Cobbling together a course out of freely available building blocks also increases variety and fosters creativity. Moodle and Bb both constrain where (and whether) users can upload and display things. Moodle courses tend to appear as one long page arranged in topical or chronological order.

A wiki can be more easily divided into less cluttered and more easily navigable separate pages. It can have a sidebar with links to other course elements including separate pages for past or future content. Access to past content, and the communities of learners who populated it, is often denied users of lock-down LMSs, but is on Siemens's wishlist for what is needed in a learning environment. Siemens (2004) succinctly articulates how the pre-packaged LMS straitjacket is at odds with rapidly changing demands on learners:

It appears that our real-life manner of learning is at odds with the design and implementations of most LMS. Strongly structured tools, with limited extensibility, face short life cycles in rapidly changing environments. Modularized approaches give the instructor or learner (not the administrator or organization) the control to follow the meandering paths of rich learning. Selecting specialized tools to achieve specific tasks–

and being able to add them to the learning environment quickly—are critical to rich learning ecologies.

This approach is also taken by Dowling (2011).

Attitudes toward sharing and creating content on the internet are changing rapidly. There are movements toward open source and away from proprietary software, people are eager to share, and there are improved mechanisms for doing so, like creative commons. There is greater awareness among teachers and their new generation of students of how social media can contribute to collaboration and language learning in ways supportive of those wishing to use such media to learn. Using wikis and blogs for learning management exposes teachers and students alike to this new-age mindset online and expands their awareness of how these tools can be extrapolated into a variety of uses which can accommodate their learning goals; see Stevens (2012) for elaboration on the paradigm shifts driving acceptance of Web 2.0 mashups to augment or replace prepackaged LMSs.

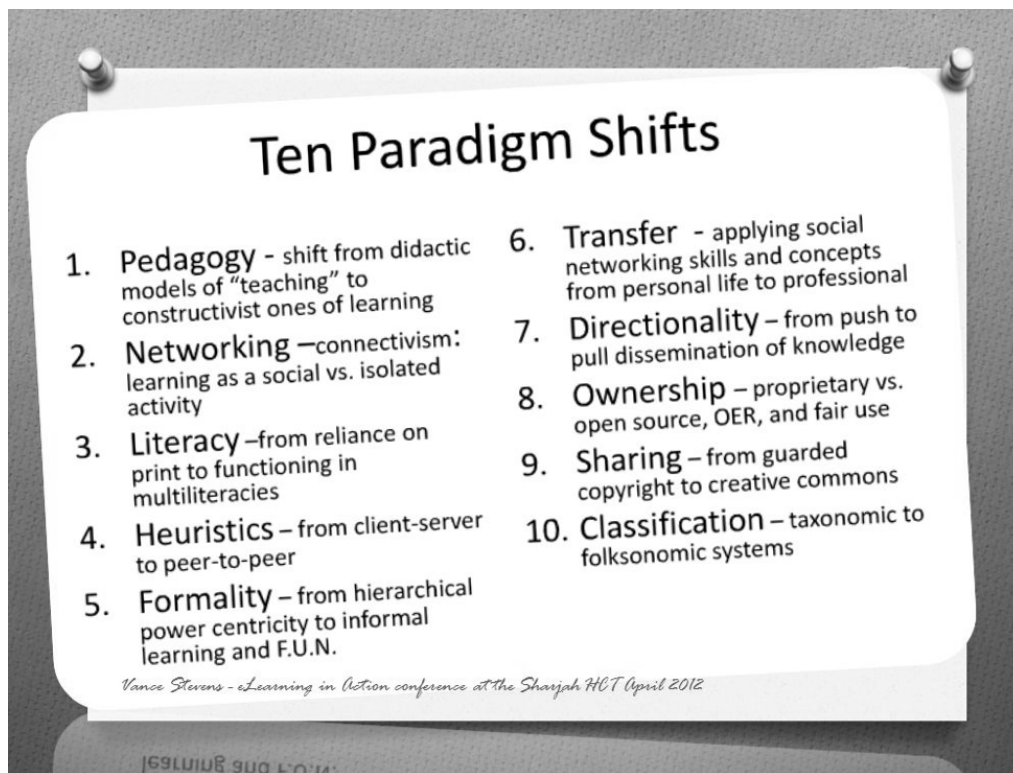


Figure 2. Ten Paradigm Shifts

I call the use of such mashups as alternatives to LMS systems like Moodle and Bb “do-it-yourself learning management systems.” I coined this phrase to describe a movement whereby Web 2.0 tools are used to accomplish learning management in a way that is more open and more flexible, and potentially more powerful, than systems developed by just one company, or in the case of Moodle, by myriads of developers working nevertheless on the same set of code. Both products are exemplary, but I feel that use of

a variety of tools teaches 21st century skill sets and gives teachers more control and flexibility over how they design and create learning environments for their students. DIYLMS also allows sharing of work publicly with other teachers and students from around the world, something that is neither so convenient nor encouraged, nor even at all possible with Moodle and Bb.

What does DIYLMS look like?

Since 2004, I have been teaching an online course once and sometimes twice a year on Multiliteracies for both the TESOL Principles and Practices of Online Learning program, and for the Electronic Village Online (EVO), which conducts free teacher professional development sessions online each year <<http://evosessions.pbworks.com>>. Since 2009 I have been maintaining the Multiliteracies course in a wiki <<http://goodbyegutenberg.pbworks.com>>. This was conceived initially as a content management portal, but it has come to incorporate many social network sites, including a Posterous blog at <http://multiliteracies.posterous.com> which acts as a kind of forum for the course. Participants can upload postings, or simply email them to the blog, and dialog via comments there, activities which border on learner management. Although it is essentially CMS, by maintaining and constantly fine tuning this wiki, I have learned and implemented many techniques for online course design and delivery.

This knowledge was put to good use this past academic year when I found myself teaching research writing to non-native speakers at New York Institute of Technology on the Higher Colleges of Technology Abu Dhabi Men's College campus <<http://fcwr.pbworks.com>>, and then started teaching an Academic Composition course for HCT/CERT at the UAE Naval College <<http://academiccomposition.pbworks.com>>. Both contexts have required me to develop or adapt viable courses quickly, effectively gauge learner response and interest, and adjust materials on-the-fly to better meet learner needs. As Siemens suggested back in 2004, flexibility, creativity, and organization beneficial to both instructor and student are achieved using DIYLMS, which looks and feels much different from "locked-down, do-it-our-way" LMS platforms.

Components in my conception of DIYLMS include

- A wiki portal for course information and organization, with links pertinent to course content and management, and other relevant resources, such as screencasts and tutorials
- Google Docs for student submission of assignments, and teacher feedback on student writing
- Blogging, to showcase student work
- Etherpad clones for group collaboration tasks
- Jing <<http://www.techsmith.com/jing.html>> and Screenr <<http://www.screenr.com/>> to create and annotate screen-capture and screencast tutorials
- A back-channel tool such as Twitter, Skype group chat, or Edmodo <<http://www.edmodo.com/>>

- In teacher training, I also use these synchronous learning tools
 - Skype group chat as a synchronous AND asynchronous forum
 - Google Hangout for live webcam and voice-enabled interaction
 - WiZiQ



Figure 3. Google Handout

DIY LMS portals

I have found that it's a lot easier to start a course in a blog or wiki than it is to develop one in a Moodle or with Bb. In LMS systems, you have to tediously add components by means of pull-down menus, and copy/paste is rarely an option. With a wiki you can just start writing out your materials as you would an e-book or a handout, and by adding contributing editors you can collaborate with colleagues and peers on your work. The first time I create such a course, I generally start with a front page and as I develop the course I move material off the main page and store it in separate pages with links to it from a sidebar. Obviously, as with any LMS, no matter how you develop it, the next times you teach the course the structure is now in place, the content is accessible, and components are navigable for students.

Navigation is much easier in a wiki or blog than with Moodle or Bb. Blogs (e.g., Blogger) allow tabs that link to pages in your project, while the sidebar in a blog or wiki forms a table of contents for a course. A Pbworx wiki page itself can also have a table of contents automatically created according to H1, H2, H3 headings etc. in such a way that users see an outline of that page with hyperlinks to each heading. Thus navigation in a

wiki can be much more fluid than in Moodle or Bb, where users are sometimes forced to scroll through a wall of text to find what they are looking for.

Wikis and blogs are more intuitive than Moodle or Bb to embed pictures and multimedia into; they are easier to decorate, and to arrange elements on a page. Wikis and blogs these days allow easy embed of a variety of media content (images, YouTube and other videos, slides from Slideshare.net, Jing and Screenr screencasts, etc.) The affordances of working in wikis include being able to upload media such as PDF documents and sound files to the wiki in such a way that any such media stored in that wiki space will then have a unique URL and can be linked to or embedded from elsewhere online. This is less conveniently accomplished or is even impossible in Moodle or Bb, depending on how “open” the Moodle or Bb course is configured to be.

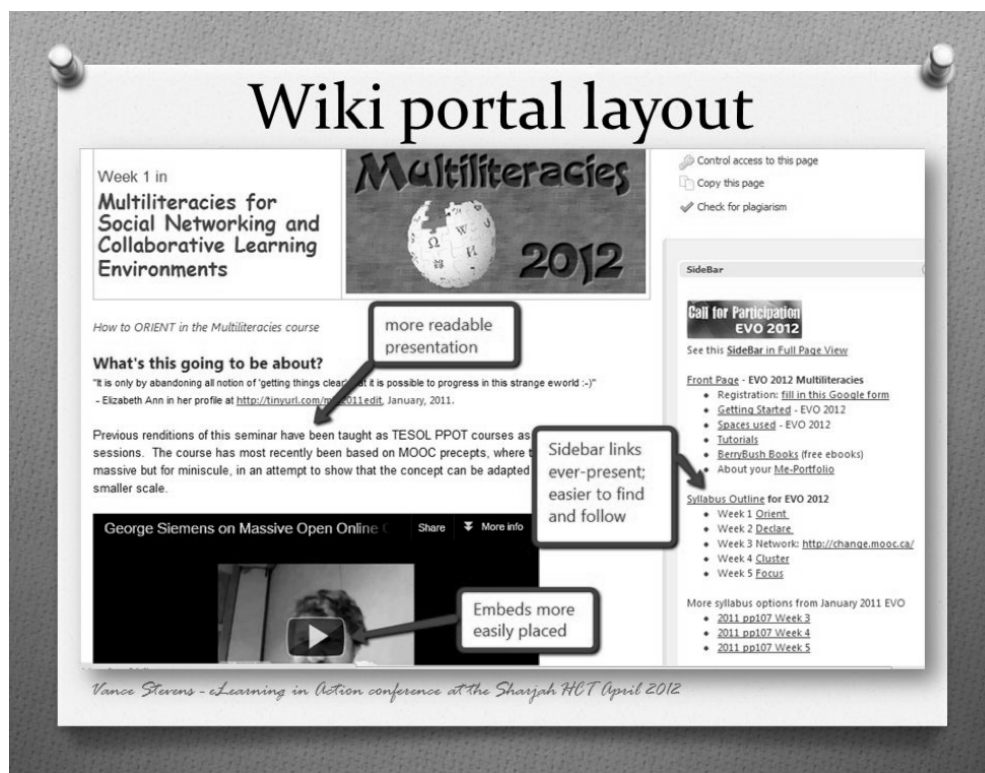


Figure 4. Wiki portal layout

Student submissions in DIYLMS

For an LMS to be able to “manage” student learning, it must have a means for students to submit their work and receive feedback on it. Without such a system, a portal of learning resources would be a CMS, or content management system. There are many such portals created for teaching purposes; for example, MIT <<http://ocw.mit.edu/index.htm>>, P2PU <http://p2pu.org/en/>>, the recent spate of MOOCs, etc. Curt Bonk lists examples of such repositories in his book *The World is Open* (2009) but he points out that although students can access any MIT course they want “there is no teacher there.” With an LMS there is; there is a teacher present who reviews and provides feedback on student work.

This might be to some extent automated, but feedback on student work is what distinguishes LMS from CMS.

Student work in any medium can be collected via Drop Box, for example <http://www.dropbox.com/>. Drop Box allows upload of large files, and each file submitted can be assigned a URL, so work can be submitted in any kind of media file with its own URL. Alternatively, media such as video can be uploaded to YouTube, slides can be uploaded to Slideshare.net, images to Flickr, etc.

In my writing classes, I use two genres of online collaborative sites for working with students in class in real time or asynchronously. One of these genres is the so-called Etherpad clones, and the other is Google Docs, into which Etherpad technology is now being incorporated.

Etherpad clones

Etherpad was an open source product that allowed users to start an online writing space, which could be worked on either synchronously or asynchronously by other users anywhere online. Etherpad technology persists online in the so-called 'Etherpad clones'. In using Etherpad clones with students, there are a number of compelling features. Anyone can start a pad, distribute its URL, and anyone with the URL can write on the pad. Everyone has access to the pad's timeline. Anyone can slide the timer backwards or forwards and see any keystroke version of the document. Any such version has a unique URL, so any particular version can be shared with others. Thus, in case of corruption or other need, the pad can be reverted to any previous state. The pad can also be saved by any user at any time and any of these saved versions can be recalled and shared. Etherpad clones can be used effectively with students who are with you in the classroom, each student contributing from his/her own computer to the document projected at the front of the room, or used effectively asynchronously in an online or blended learning environment.

One example of how I use such spaces is to go over homework assigned students. Suppose students are asked to complete a worksheet with open-ended questions. Traditional ways of checking such work in class include going over the answers with the class as a group, or dividing students into small groups or pairs to have them check each other's work. Either way, some students will not be engaged for significant periods of time, and the teacher can't effectively monitor the students. So I put such worksheets up in Etherpad and when class convenes I assign various groups of students to fill in different parts of it. Students can watch the answers appear on the screen all at once as the various groups write. I can monitor all the groups at once and make corrections or suggestions to the document as it's being worked on, and all students can see each other's work and help improve any part of it. During such exercises, the work gets done in a fraction of the time it takes either of the more traditional ways, and most if not all the students are visibly, even enthusiastically, engaged in the process.

Another way I can use Etherpad is to have students work collectively on various components of a good essay. For example we can work as a class on effectively revising topic sentences, introductions, conclusions, thesis statements, etc.

Etherpad was so good that the company was bought by Google, and its developers became Google employees. Since the acquisition of Etherpad, Google Docs have improved in speed with simultaneous multiple users. Although Etherpad is no longer available at its original website, its open source code has been downloaded and installed at a number of host servers as clones of the original service. These can be found in a Google search on Etherpad clones, so it is still possible to use the software with students (see Lowenson, 2010 and postings to this Quora forum: <http://www.quora.com/What-are-the-currently-available-free-EtherPad-clones>).

Besides reliability of the host server (the likelihood of your document being preserved online “forever”) another important consideration is the number of users that can simultaneously work on a document. Sync.in for example stops accepting contributors when only eight users have accessed the document, rendering it not so useful for large classes. TitanPad on the other hand works with possibly as many as 30 or 40 simultaneous users <<http://titanpad.com/>>.

Google Docs

Google Docs are another way to accept student submissions, and with Google Docs, in a writing class, I can work closely with the students both in and between classes. To use Google Docs I have to insist that all students get a Google ID. This poses a problem for people who feel that cobbling together an online learning environment from freely available Web 2.0 tools suffers from the need to remember and manage multiple passwords whereas with Moodle or Bb there is only one, but with Google providing so many tools for education it is getting to where a Google ID is becoming a passport to a lot of the best free educational tools available at any one stop online, so this objection is diminished as users become aware of this. A more serious frustration occurs if all students in one class attack the Google site at once, and Google falsely detects a spam attack and temporarily blocks further account creation from the offending IP address.

However, once students get their Google IDs and can submit drafts and revisions in Google Docs, many affordances appear as teaching opportunities arise. For example, teacher feedback can be given in-class interactively in real-time via an in-class projector, with individual students following along on their laptops. Asynchronously, effective feedback can be given in such a way that it can be immediately seen whenever and wherever students sit down to revise their work. Recently I was reviewing a student’s work in my office and I noticed that the student was following my cursor and responding to my feedback in real time from elsewhere on campus, corroborating my impression that the system works well in such cases.

From a teacher’s perspective, it is necessary to understand how Google’s “collections” work but once the filing system is understood then it is a trivial matter to file students’

work where you need it in order to manage it. I file student work by class and within a class, by assignment. If we're working on a particular assignment, any work a student has touched will be highlighted in bold in my list of submissions for that class. By the same token, once I have provided feedback on any student's work, its filename becomes bold in their view. With this system I can work more closely with students than if I collected stacks of paper from them, or even if I relied on email attachments.

Showcasing student work in DIYLMS

Although the same could be achieved with a link from Bb or Moodle, it seems more logical in a do-it-yourself LMS that student work should be showcased in its own dedicated website. One way to do this is to create a blog in Blogger and invite your students to join it and contribute to it. Alternatively students can keep their own blogs, and these can be linked from the wiki portal, and updates to them tracked through Google Reader so the teacher can see in that one place when any blog has been updated (no need to open all the students' blogs to see which have in fact been updated).

I currently use Posterous with my students. They subscribe to the blog and then I promote them to contributing writers and encourage them to blog there. There are several advantages to using Posterous as a class blog site. It's possible to make it accessible only to people who provide a code, in case you want to make it private only to your students (and the code is stored in a cookie so it needs to be entered only once on a given browser on a given computer). The friendliest feature is that you can create posts by email, as well as online through your browser. This is often preferred by students, as email is already a part of their workflow. If you attach a picture or media file in the email where you submit your post, it becomes a part of the blog. Posterous specializes in providing plugins for most media, so if the attachment is a picture, it displays in the post, and if it's other media, it appears in an appropriate player.

Forum conversations in DYLMS

Forums or some means of participants having conversations on class topics is a common feature of LMS. One way to emulate a forum in DIYLMS is to use yet another affordance of Posterous. When a post is made, all subscribers receive an email. If they reply, their replies appear as comments in the blog. All subscribers in turn receive an email with this comment. If they reply, more comments again appear in the blog. Because of the email notification, and option to respond right there in email, the result feels more conversational than with comments to other blogs and wikis, yet the appearance of these responses in the Posterous blog is just as attractively presented.

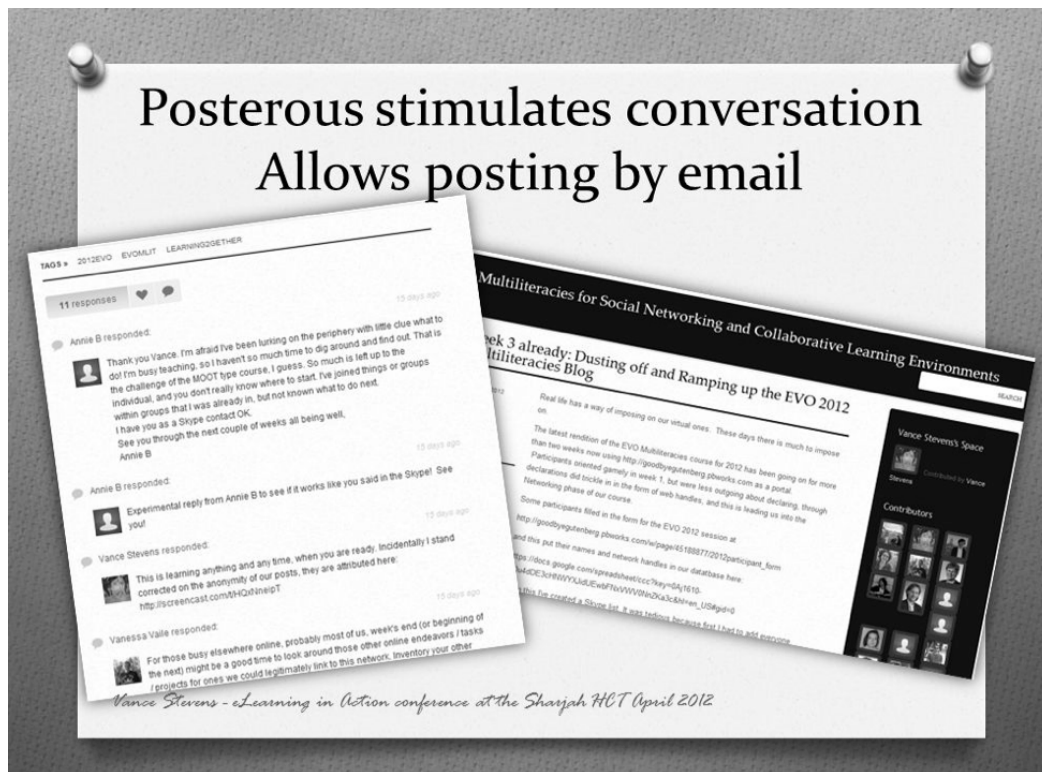


Figure 5. Posterous stimulates conversation

A threaded discussion forum is probably the best way to prompt and prolong an in-depth discussion, but unlike comments to blogs, posts to such forums tend to get buried and forgotten. Still forum and listserv discussions have their viable moments, and there are some very good forum options in the available Web 2.0 services. Yahoo Groups has run reliably for the past decade, and allows you to set up a portal with links to messages, a files storage space where members can upload files, polls, and a calendar. If messages are made public then they can be read as an RSS feed, which means they can be viewed in a feed reader like Google Reader, or aggregated in any number of web portals (e.g., Blogger, Pageflakes, Netvibes). More recently Google has fielded its own groups site which integrates with its many other offerings for educators. Besides handling forum list traffic, Google groups also combines its service with compelling features for a group Web portal.

Backchannels

Another highly effective forum alternative is Skype group chat. This is a feature of Skype where anyone can invite his or her contacts to form a group which can then engage in chat over time. The group members can see the ongoing chat in their contacts list (or they can key in the name of the group and fetch it) but they don't all need to be on Skype at the same time, though as it's Skype, often some members are, either by plan or coincidence. The chat works by someone asking a question or offering an insight. As other group members happen online they might answer or comment, and a thread is built up. I know of several groups who have kept such discussions going for years. An

annual April 22 Earth Day webcast is organized year after year in a perpetual Skype group chat where the back-channeling heats up each year as the event approaches <<http://earthbridges.net/>>. Also, participants in the Worldbridges/EdTech Talk Webcast Academy used to interact with each other primarily in Skype chat as well as in their actual webcasts, collaborating on such projects as their crowdsourced eBook of Webcasting <<http://webcastacademy.net/>>.

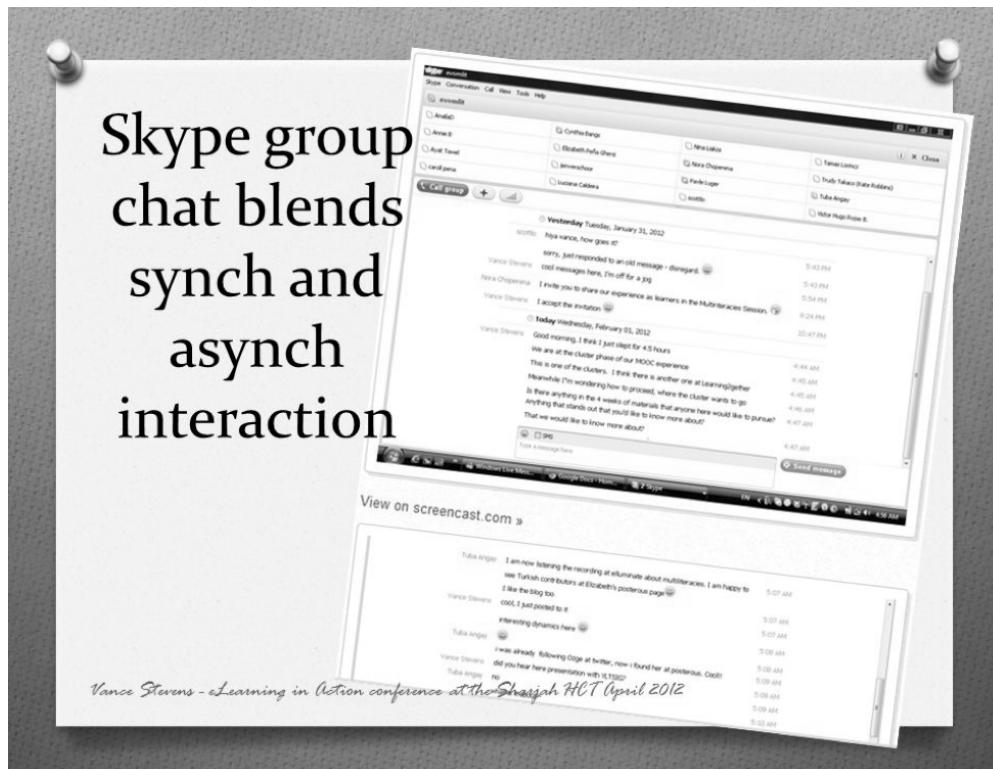


Figure 6. Skype group chat

Skype runs in the background, separately from the sites participants may be accessing; therefore, it creates a back-channel where members of a group can easily communicate with one another with likelihood of quick response at any time.

Another back-channel option is Twitter. Twitter allows users to post using a common #hashtag, so all users following that tag see the latest group posts. Also you can group users in lists, even without following them, so to see all the tweets of everyone in a particular list, you simply visit its URL. Twitter lists are a good way to monitor a back-channel of student users without any of those listed having to follow anyone else on the list.

The big advantage of both Skype and Twitter is that so many people use them in everyday life. As with Facebook, you are most likely to see messages from contacts in online spaces you follow in the course of computing every day, as a normal part of your work and social flow. I find this to be the main disadvantage of Edmodo and Yammer, which sport Facebook/Twitter-like interfaces in an environment supposedly conducive

to relationships between teachers and students. However, since I don't use Edmodo in my normal workflow, I might miss some of these messages until I think to check there. This could change with the advent of Edmodo communities, which might give educators a reason to check Edmodo more often, <http://www.edmodo.com/communities/?language=en>.

Online spaces for live interaction and replay

Skype also allows users to create a space where live chat can occur augmented with both voice and video. These chats can be recorded using third party software, either software specifically designed to record Skype calls, or screencast software that can capture video (in case web cams are used) and sound from both sides of the Skype conversation, which might require use of a USB microphone so that sound can be harvested remotely from the sound card and locally via the USB; see Yasmine (2011). There are also tools which cost money, for example Blackboard Collaborate (formerly Elluminate) and Adobe Connect, which can capture voice, web cam, and facilitate use of collaborative web browsing, screensharing, polls, and interactive graphics and text via a shared whiteboard, among other features, and produce recordings of the session stored on cloud servers.

These tools are fairly robust but there are a few free alternatives as well. WiZiQ allows people to meet in spaces with many of these same features, and get a recording of the session. Also Google Plus (Google+) allows users to enter a shared space where voice and web cams are activated, but recording must be done by someone who captures the interaction using third party software (see Elliot, 2011, for some examples of such software).

Conclusion

This article has sought to establish that whereas LMS or learning management system packages can assist teachers in developing, managing, and tracking courses of learning for their students where students can know at one Web address what that course of learning is and what their next step should be, they expose the learning environment to "insidious pedagogy" and can constrain pathways for creativity in course design. DIYLMS, or creating LMS mashups from freely available Web 2.0 tools, can achieve similar learning objectives plus model for learners ways that they might approach problem solving in their own learning and project management situations.

The DIY approach offers optimal flexibility for both learners and facilitators and since its components are adapted according to need, applies critical thinking skills appropriate to knowledge workers in a world where new problems must be addressed with novel solutions at an ever-accelerating pace. Indeed, since new creativity tools appear on the Web 2.0 more often than changes are made to either proprietary or open source LMS packages, mashups of such tools might provide even more innovative solutions to hosting learning portals and managing submission and feedback on students' work, as

well as providing forum and live meeting solutions that keep pace with developments in educational technology in a Web 2.0 connected world.

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