Moving Beyond Blackboard: Using a Social Network as a Learning Management System

Christopher Thacker

Abstract

Web 2.0 is a paradigm of a participatory Internet, which has implications for the delivery of online courses. Instructors and students can now develop, distribute, and aggregate content through the use of third-party web applications, particularly social networking platforms, which combine to form a user-created learning management system (LMS). The author discusses how to develop a user-created online LMS using widely available, low-cost web applications. The result of this approach is greater accessibility.

Web 2.0 is a new paradigm for the Internet focusing on generating greater communication, participation, and community. The paradigm has shifted from a top-down to a bottom-up modality of participation as the roles of developer and user have blurred, owing to the reduced level of technical knowledge required to create, distribute, and aggregate content.

Removing the restriction of technical knowledge has served to foster student participation and by extension, community. This paradigm shift has implications for online courses, bringing instructors closer to fostering a true online learning community. Instructors and students can both generate content to enrich the online course, due to the modality of bottom-up participation.

In order to maximize the effects of the Web 2.0 paradigm, this article recommends allowing instructors to develop their own LMSs using Web 2.0 technologies—in particular, a social networking application as a platform (a hub for combining applications). The benefits for metropolitan universities are better course delivery, student participation and satisfaction, and a considerable cost savings. When taken in sum, this approach fosters greater accessibility for students of metropolitan universities.

Shifting to a Paradigm of a Participatory Internet

Web 2.0 is a paradigm for the Internet that focuses on user-participation. Hart-Davidson (2007) explains, "the concept of Web 2.0: that users produce, organize, and share content, that they interact with web sites as content aggregators and even content creators, and that they pursue social goals as well as work goals" (Thacker and Dayton 2008). To understand how the paradigm for the Internet has changed, it is necessary to view the original concept of the Internet (Web 1.0) as a top-down medium for communication and participation where developers fed users information and, in turn, users passively accepted. The Internet was a static medium. The critical piece missing

from this medium was a meaningful feedback loop—a means for users to communicate, and as a result, participate. To understand the Web 1.0 paradigm, it is best to think of the web as a collection of billboards. Under this paradigm, each web page (or billboard) was unchanging and content was pushed to users. This paradigm was altered with the shift to Web 2.0.

Win Treese (2006) described Web 2.0 as an incremental set of changes to existing Internet technology. Web 2.0 did not appear overnight; it was a slow evolution of technologies that enabled a paradigm shift. The driver of this evolution was not the developer, but instead the user. The result was a paradigm shift of the Internet from a top-down to bottom-up medium for communication and participation where users can now freely create and contribute content. The medium evolved from static (unchanging), to dynamic (changing), as a result of meaningful feedback loops from the user to the developer. If you recall the billboard example (Web 1.0), where web sites were unchanging, then you could liken Web 2.0 to enabling users to create their own billboards. As a result, the web has become dynamic based on user-participation.

Web 2.0 technologies are tools that help foster communication and participation. The most significant development in the evolution of these technologies stem from developers making the Internet more accessible to users—the Internet is becoming easy to use. Users are no longer dependent on specialized knowledge, such as coding and markup languages like HTML, in order to participate. Table 1 illustrates the evolution from Web 1.0 (top-down approach) to Web 2.0 (bottom-up approach).

Table 1. Comparison of Web 1.0 to 2.0 Features

Web 1.0	Web 2.0
Content Management Systems	Wikis
Web journals	Blogs
Code reuse	Widgets
Forums	Social networking
Usenet	RSS feeds

Source: Adapted from "What Is Web 2.0," by T. O'Reilly, 2005, para. 4. Copyright 2005 by O'Reilly Media, Inc.

The shift from Web 1.0 to Web 2.0 changed the relationship between the developer and the user. Under the Web 1.0 paradigm, users passively received information, which was the extent of their participation. As the concept of Web 2.0 began to take shape, the distinction between user and developer began to blur. Under the paradigm of Web 2.0, users become developers (i.e., billboard designers). Specifically, they are able to create, publish, and distribute their own content. Paul Anderson (2007, 19) described this shift: "this idea of opening up goes beyond the . . . opening up [of] code to developers, to opening up content production to all users and exposing data for re-

use and combination in so-called 'mash-ups'." The remainder of this article discusses the shift from Web 1.0 to Web 2.0 by describing the following evolutionary features:

- Content Management Systems to wikis
- Web journals to blogs
- Coding to widgets
- Usenets to RSS feeds
- Forums to social networking

Content Management Systems to Wikis

Content Management Systems (CMS) are applications that enable developers to manage authoring, workflow, storage, and publishing (Browning and Lowndes 2001). CMS has been adopted widely as a way to ease the process of distributing content to users through "self-service authoring" (Browning and Lowndes 2001). Users also do not require specialized technical knowledge to publish content (Browning and Lowndes 2001). CMS exist on the Web 1.0 paradigm, due to the scope, cost, and complexity to develop and deploy.

In comparison, wikis are a simplified CMS. The main difference is that they are designed to be participatory. Wiki software enables both developers and users to collectively edit and collaborate in the publication of content (Fuchs-Kittowski and Köhler 2005). Wikis embody the bottom-up approach of Web 2.0 by being easy to use—requiring a minimum of specialized knowledge to create and deploy.

Web Journals to Blogs

Originally, developers would publish content using a markup language such as hypertext markup language (HTML). Development of a web page was cumbersome. What users have come to know as a blog evolved from web journals (Blood 2004). Developers would create and post content on a wide variety of subjects. Although blogs existed with the Web 1.0 paradigm, these sites were time consuming to update and static. This approach posed a problem for users: the prerequisite to share content was technical knowledge of, for example, HTML.

As early blogs became popular, developers created web-based applications (similar to a CMS) to enable users to create and publish content. Basic users could sign up for blog-hosting services such as LiveJournal, Blogspot, or WordPress. More advanced users could host a blog on their own servers using Movable Type or Druple. Blogs replaced personal web sites, which has been crucial to the democratization of the Internet (Blood 2004). Users now can publish content at-will without the need for specialized knowledge. The concept has grown further to include micro-blogging in

the form of Twitter, Tumblr, and Posterous. Users are becoming content developers and distributors, thus changing the process of information exchange on the Internet.

Coding to Widgets

Code reuse is at least, conceptually, a precursor to widgets. Developers often reused snippets of code to develop new programs (Rajesh 2011). Cutting and pasting code from previous projects saved developers time and money (Rajesh 2011). Widgets work in the same way. They are small and often useful programs that can be installed on a web page by simply cutting and pasting a snippet of code (Makela et al. 2007). These programs can be used to increase the functionality of a Web page without the need of programming knowledge.

For instance, a developer or a user can embed video from a service such as YouTube to a web page, blog, wiki, or discussion board. The embedded code then generates an application (e.g., video player) that streams the content. This enables users to share content across the Internet. Users do not have to have specialized knowledge of a markup language. Instead, all they need to do is cut and paste code and the service generates an application (Rajesh 2011).

Widgets represent the growing freedom that the Web 2.0 paradigm has afforded users, who are driving the creation and distribution of content. Widgets offer users the means to share content, enabling a more open and participatory experience.

Usenet to RSS Feeds

Usenets are group discussions collected into categories as newsgroups. Usenet is a form of distributed content. Usenets enable users to share a variety of content, such as text, images, and sound and video files (Alexander 2006). Users join specific Usenets based on topics of interest. Usenets represent the Web 1.0 paradigm because content essentially is pushed to the user by e-mail. As such, it is best to think of a Usenet as a subscription service that sends topics and replies directly to a user's e-mail account.

Real Simple Syndication (RSS) is a progression of the Usenet concept; however, content is pushed in a different manner. Much like Usenet, RSS is a subscription service (O'Reilly 2005). However, RSS allows users to pick and choose multiple forms of content. This content then is aggregated (not pushed) to the subscriber through a web application. The advantage of this method is that users select the type of content they will consume. This content is not restricted to a particular topic; it is open, allowing users to select updates from across the Internet including blogs, site updates, news, discussion board posts, and audio and video files. To illustrate: think of an RSS feed as an aggregator of web content. The aggregator collects and forwards content into a single program—it is a one-stop subscription service for web content.

RSS is about choice. This is a significant distinction from Usenets (Web 1.0) because choice under this paradigm was limited. Content was delivered, but not aggregated, thus placing much of the burden of sorting through content on users. As such, users

would have to devote a considerable about of time to sort through information in order to find relevance.

Forums to Social Networking

Social networking is the act of making meaningful social connections via the Internet. There were many precursors to modern social networking: forums, bulletin boards, and Usenets (Smith 1992). Each of these applications allowed users to create topics for asynchronous discussion. This was an immense step toward what is now known as a social network. Discussions were tied to interests and this served as a bond between users. Many times, this bond extended beyond the forum to real face-to-face interactions via meetings and conferences. These technologies proved that the Internet could foster meaningful communication between multiple users simultaneously; the result was the formation of communities, networks, and groups.

Modern social networking applications are actually an amalgamation of several technologies: blogs, widgets, feeds, and CMS. Social networking sites, such as Facebook, Google +, and Myspace, combine these technologies in order to support communities, networks, and groups. The underlying technologies are Web 2.0. Through active participation, users create extensive communication networks or a social network, which has become a platform for technologies that foster communication and user-participation.

Web 2.0 Is a Paradigm That Promotes Community

Web 2.0 technologies removed the restrictions of technical knowledge that prevented users from actively participating in the creation, consumption, collaboration, and distribution of content on the Internet. In other words, the Internet has become easy to use. As a result, Web 2.0 technologies changed how users interact by "[creating] network effects though an 'architecture of participation'" (O'Reilly 2005, 1). Participation has been fostered by the change in the direction of communication. The Web 1.0 paradigm pushed communication in a single direction, and the nature of the technologies limited feedback loops. The shift from a top-down to a bottom-up approach changed the nature of communication. Instead of the Internet being a single-direction communication medium, it is now omni-directional. Both developers and users are interacting and, in some cases, switching roles).

The new paradigm of participation coupled with the ease of use has caused exponential growth of content being distributed on the Internet. The Internet is now open for user-created content development, distribution, and aggregation. As a result, users create meaningful exchanges. Openness has encouraged content consumers to search out others in order to commune. With this level of freedom, users coalesce into communities, and as technologies improve, so do their interaction levels. Bonds are formed and lasting, and meaningful connections are made without the constraint of technical knowledge. Users actively build permeable online communities: "social aggregations that emerge from the net when enough people carry on those public

discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace" (Rheingold 1993, 5)

Online communities are bound by the same conditions as a local community. The only distinction is that the Internet mediates the flow of communication between members. The Web 2.0 paradigm affords users a more open means of communication, which should encourage community building. McMillian and Chavis (1986, 9) defined community as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that member's needs will be met through their commitment to be together." They further described community through four elements:

- Membership
- Influence
- Reinforcement
- Shared emotional connection

Membership

Membership begins with the desire to connect with others. In a deeper sense, "membership is the feeling of belonging or of the sharing of a sense of personal relatedness" (McMillian and Chavis 1986, 9). The Internet is a tool for communication that has afforded users the ability to search out others based on interest and need. Web 2.0 allows for like-minded people to more easily communicate and bond.

Influence

Once a person joins a community, the process of building relationships begins. The development of influence creates "a sense of mattering, of making a difference to a group and the group mattering to its members" (McMillian and Chavis 1986, 9). Influence is driven by participation. Web 2.0 technologies foster participation and the effects expand influence among members through socialization.

Reinforcement

As bonds within the community are developed, members work to increase influence through acts of reinforcement, "Integration and fulfillment of needs. This is the feeling that members' needs will be met by the resources received through their membership in the group" (McMillian and Chavis 1986, 9). Users join a community if they feel they can gain some type of benefit. Whatever the benefit, there is a process of sharing. Online communities share data through text, video, audio, etc., and Web 2.0 technologies ease the exchange process.

Shared Emotional Connection

As bonds tighten, shared emotional connections form, As McMillian and Chavis (1986, 9) describe as "The commitment and belief that members have shared and will share history, common places, time together, and similar experiences." These connections are shared in what can best be described as an *esprit de corps*: the act of the member giving oneself to the whole of the community.

Online Courses are Learning Communities

Online communities can also become learning communities—groups that are established for the purpose of communal learning. Over the course of the past decade, universities have begun to offer online courses, which have shown the potential to deliver a high-quality educational experience. However, these courses have been delivered using the Web 1.0 paradigm. Instructors push content to students who passively accept. Online courses need to experience a paradigm shift. Web 2.0 promises to create a community of learners by fostering participation between the instructors and the students. Students should influence when and how they receive course content.

Capper (Liaw 2008) described several benefits of an online course. The main descriptor is the concept of asynchrony. Students interact with the course materials and collaborate at the time and place of their choosing. Moreover, online courses enable instructors to deliver new strategies to foster learning. For instance, instructors can post assignments, prompts, and questions to elicit responses outside of the classroom. In essence, the class can be run continuously. Author's note: I have at times used this asynchrony to generate discussions regarding timely issues related to student projects. I have posted questions regarding relevant articles or news items that pertain to a lesson in my course. I also have allowed students to post similar articles that were appropriate for discussion. This approach coupled with an open and participatory structure offers "opportunities for teachers and learners to share innovations in their own works with immediate support of electronic group" (Liaw 2008, 865).

Online course criticism stems from problems with the Web 1.0 paradigm. Liaw (2008, 865) presents some general limitations:

- Lack of a firm framework to encourage students to learn
- Absence of a learning atmosphere in e-learning systems
- The required high level of self-discipline or self-direction

These limitations can be overcome by shifting to the Web 2.0 paradigm. Using Web 1.0, course materials were pushed by the instructor; however, the means to participate were limited or nonexistent. Online courses have served, to a large extent, as bulletin boards for course content (e.g., the billboard example). West, Waddoups, and Graham (2007) found that instructors "rarely adopt all of the features of a multipurpose tool such as

Blackboard" (11). Instructors posted materials (assignments, notes, instructions) as supplements to their course. The LMS did not offer enough interaction to mimic the experience of a face-to-face class. Students were forced to make sense of the course through materials provided by the instructor. Communication between the instructor and students was limited by the availability of features. This forced students to have a high level of self-discipline and self-direction in order to be successful (Liaw 2008).

Content delivery is essential to an online course. With Web 2.0, both instructors and students are content developers for the course. Instructors deliver course materials in a variety of ways to which students can respond. The process of interaction with the course materials is the act of participation. Students create content in the form of their response to the course materials. Web 2.0 enables students to create responses using multiple forms of media: text, audio, and video. Students also can employ multiple applications to submit their responses to the course materials, wikis, blogs, and widgets, for example. Using the Web 2.0 paradigm, an instructor can tailor the course based on student preferences.

As for student preferences, Riener and Willingham (2009, 34) recommend, "[instructors] present information in the most appropriate manner for our content and for the level of prior knowledge, ability, and interests of that particular set of students." This has ramifications for online learning because levels of prior knowledge, ability, and interests are unequal. Instructors must assess student preferences in order to maximize the effectiveness of an online course and turn away from the one-size fits all approach to course delivery. By treating a course as a learning community, the limitations described by Liaw could be mitigated through the following:

- **Membership:** a shared sense of purpose to encourage learning.
- **Influence:** accountability to the community spurring the necessary discipline to succeed.
- **Reinforcement:** belief that learning will occur regardless of resources, time, and location.
- **Shared emotional connection:** sense of commonality with other students, which develops into esprit de corps.

Instructors Can Develop Their Own User-Created Learning Management System

LMSs, such as Blackboard 9.1, Moodle, and Sakai, are course delivery programs that assemble a prepackaged set of features. At face value, these systems offer a powerful set of features, which in combination can deliver very rich learning experiences to the student. However, these systems are proprietary, which limits choice.

An instructor integrating an LMS into a course should be thought of as a developer. An instructor should be given the freedom to select features that enhance the online course's functionality. Instead, prepackaged LMSs provide a limited set of choices, which inhibit the instructor's developer role. Thus, an instructor is relegated to the role of a user. That is, features are pushed onto the instructor without the opportunity for selection by the instructor (Web 1.0 paradigm).

LMSs are based on a content management system (CMS). The only difference is the focus on publishing and delivering course content. LMS applications also contain a feature set as described in Table 2, which enable the instructor and students to communicate and participate in a closed network.

Table 2. Common Features of a Learning Management System

Feature	Description
Announcements	Featured on the main screen and used to inform students of latest updates to the course
Assessments	Test and quizzes
Blogs	New feature: integrated blogging
Grade book	Integrated grade book
Groups	Group formation
Discussion	Integrated discussion board
Drop box	Document submission
Messaging	Integrated messaging system (internal and external)
Member management	Integrated member dashboard (review, accept, deny); user-permission levels
Wikis	New feature: integrated wiki

If an LMS is nothing more than a CMS with additional features that foster communication and participation, then there has to be an alternative model that morphs the instructor's user role into a developer role. A developer assembles and deploys applications. To illustrate: if we accept the Web 2.0 paradigm, then the instructor assembles a set of third-party applications to develop a user-created LMS. This is the strength of the Web 2.0 paradigm—the instructor is now in complete control of the LMS design.

In order to develop a user-created LMS, an instructor must first select a platform in order to publish and deliver online course content. A number of applications can fill this requirement: wikis, blogs, and user-created social networks. When selecting from these applications, instructors should consider the level of communication and participation that they wish to promote. Wikis enable collaboration and commenting.

Blogs enable commenting, but no collaboration. In contrast, user-created social-networks enable numerous methods for communication and participation (blogs, wikis, discussion boards, groups, and embedded widgets). User-created social networks are an amalgamation of Web 2.0 applications that all run on a CMS.

There are numerous user-created social networking sites, Ning, Grouply, and Social Go, for example. Table 3 shows that these social networking sites have many features that can be adapted to serve the same purpose as those found on LMSs (such as Blackboard 9.1). Additionally, any features that are not provided can be introduced into the system by using third-party applications.

Table 3. Feature Comparison of LMSs to Social Networking Sites

Learning management systems	User created social networking	Feature comparison
Announcements	Built-in	Both applications offer a built-in feature that enables administrators or moderators to post announcements.
Assessments	Third-party application	LMSs offers a built-in assessment application; instructors can opt to use a number of free testing/survey sites (such as classmarker.com or surveymonkey.com).
Blogs	Built-in	Both applications offer a built-in blogging feature.
Grade book	Third-party application	LMSs offers a built-in gradebook; instructors can opt to use Engrade (a free and secure online gradebook).
Groups	Built-in	Both applications offer a feature that enables students to form collaborative groups.
Discussions	Built-in	Both applications offer built-in discussion boards.
Drop Box	Third-party application	LMSs offer a built-in digital drop box; instructors can opt to share assignments via Dropbox, Box.net, and Google Documents.
Messaging	Built-in	Both applications offer built-in user-to-user messaging.

Member management	Built-in	Both applications offer a member management feature; social networking sites such as Ning and Grouply enable instructors/administrators to assign additional roles (such as moderation and super-users).
Wikis	Third-party application	Newer LMSs offer a wiki feature; instructors can opt to use one of many free wiki sites such as Wikispaces.

Table 3 illustrates an overlap of features between a traditional LMS (such as Blackboard 9.1) and a user-created social networking site. If these social networking sites share the same features as an LMS, then why do we not hear about instructors using them? The dirty secret is that they do. Instructors are adopting user-created social networking technologies because they are fed up with the limitations of an LMS. In fact, one can simply scroll the message boards of the *Chronicles of Higher Education* and find many discussions loaded with vitriol regarding LMSs, particularly Blackboard. One of the principle criticisms concerning an LMS is the adoption process. Instructors and students will use only technologies that are proven to be effective in terms of cost-benefit. The cost-benefit for each group differs, but the common-thread is efficiency.

For the instructor, the cost-benefit is a function of time in terms of developing and maintaining the course. By reducing the costs devoted to adoption, we can increase the instructor's ability to interact with students and enrich the online learning community (West, Waddoups, and Graham 2007). Course development can take many hours. Most instructors who have set up an assessment on Blackboard can probably attest to this. If a feature is difficult to use (thus costly in terms of time) or deemed unreliable, an instructor will not adopt it. There are many features that an LMS provides but go unused. If a feature is not being used, then what purpose does it serve? Using the Web 2.0 paradigm, instructors can select from many different features to enhance an LMS. Instructors can experiment and become familiar with dozens of applications that best serve their needs, substantially increasing the chances for a class of features to be used, thus making course delivery more robust.

For the student, online courses are usually a zero-sum proposition. This is result of the one-size-fits-all approach of the LMS, which is an outdated modality. The instructor's role is to deliver course materials (notes, lectures, assignments, and assessments) in a way that is compelling to the student. This means making use of the LMS's features. There are many excellent features on an LMS. However, if a feature is not used, or if there is resistance to a feature's use, it is essentially useless. Instructors should consider the learning preferences of students and prepare multiple modes for delivering course content.

Online courses delivered through a social networking platform offer instructors the flexibility to select the best technologies to meet their strategies. Adoption occurs when a technology or feature becomes familiar (Landry, Griffeth, and Hartman 2000). If an instructor becomes comfortable with a technology, the more likely it will be used. Students are subject to the same condition. With the ubiquity of social networking sites such as Facebook, Myspace, and Google+, social networks have become familiar; as such, why not use familiar technologies that can be adapted to deliver an online course?

Instructors can provide their students with a custom LMS built on a social networking platform (thus multiple interaction modes). They also can select the best methods for course delivery based on the students' learning preferences. The effect would be a vibrant learning community. If the old Web 1.0 modality is upended in favor of Web 2.0, the result would be an online course that fosters participation, communication, and choice for both the instructor and the student.

Best Practices for Developing a User-Created Learning Management System

If instructors decide to develop their own user-created LMS, then it should be designed around the learning preferences of their students based on abilities, interests, and background knowledge (Riener and Willingham 2009). It is critical for the instructor to provide open channels for feedback, because not all students have the same level of ability, interest, and background knowledge. Failure to consider preferences and provide an open channel of communication could seriously undermine the effectiveness of online course delivery by lowering the employed technology adoption rate. Therefore, to maximize the effectiveness of this user-created LMS course delivery system, instructors must do the following:

- Train students to use course features and technologies.
- Match assignments, projects, and assessments with the most effective features.
- Design assignments that allow students to socialize.
- Encourage student feedback throughout the course.

Train Students to Use Course Features and Technologies

Instructors must take care in training students to use the technologies employed for the user-created LMS because there are always learning curves. Training increases the user's comfort level with a particular technology, which is vital to the adoption process. When designing a course, instructors should provide several introductory assignments that make use of the technologies employed. From my experience, I recommend having the students do the following:

- Create a personalized profile.
- Blog an introduction.
- Review and comment on the introduction of fellow students.
- Socialize by creating groups based on self-selection.
- Post technical issues on a discussion board or wiki.
- Blog a self-reflection on the introductory experience.

Assignment note: the instructor should provide a list of commonly used features included in the course and allow students to arrange these features on their personal page based on their preference.

Create a Personalized Profile

Profile creation is the first step to creating an identity on a social network: it details a person's personality, interests, experience, background, etc. A profile page not only provides the student's identity, but also introduces the student to the features of the site. Most social networking sites use the profile creation phase called a tutorial to introduce users to the built-in features of the site. Additionally, the tutorial walks users through the process of customization, allowing users to change the design and layout of the user-interface to their preference.

Blog an Introduction

An introduction can provide the community with insights into the personality, interests, experiences, and background of community members. Blogging an introduction expands on the information provided in the user-profile, and it further reinforces identity. This process is the first step in a student accepting membership into the community. This task also can be used by the instructor to assess the students' writing abilities and level of course commitment. I have found that students who were at first contentious in this assignment often performed well in the class. The assignment enabled early intervention for students who were resistant to participate in the course. Assignment note: instructors should focus on providing students with strong questions that coax out their personality, interests, experiences, and background. I also strongly encourage instructors to participate by blogging an introduction of their own.

Review and Comment on the Introduction of Fellow Students

After completing the blogging assignment, students should be required to review and comment on the introductions of fellow students. This task can serve as a way for students to familiarize themselves with community members and begins the process creating influence within the community. Assignment note: depending on the size of the class, it might be best to have students comment on blogs by students that share similar interests. I encourage instructors to participate using this same practice.

Socialize By Creating Groups Based on Self-Selection

Instructors should encourage the development of groups within the learning community based on self-selection. Groups should be modeled as a cohort. Regardless of the instructors course focus (assignments, projects, and assessments), students can benefit by working together to meet the course outcomes. Groups inject collaboration into the course, even on individual assignments, projects, and assessments. Groups can serve as study groups, writing and editing workshops, and peer tutoring. This process of group formation further reinforces membership and influence by creating bonds based on interest. Additionally, it fosters reinforcement by allowing students to select groups based on interest and mutual benefit; it also creates a sense of shared emotional connection by fostering a cohort design to provide peer assistance throughout the course. Assignment note: instructors should provide students with a framework (rules and terms) for group interaction. Author's note: instructors should monitor closely group formation and interaction.

Post Technical Issues on a Discussion Board or Wiki

For this type of LMS to work, an instructor needs to identify and address issues. Failure to adopt happens relatively quickly in the process of assessing a new technology. As such, students should be encouraged to post a description of technical issues to a discussion board or wiki. Not only does this enable the instructor to develop a set of instructions for the students to overcome issues, it also empowers students to post their own methods for addressing technical issues. This posting task reinforces shared emotional connections by providing students the means to seek out technical advice from the community. Reinforcement is gained through benefit: students will have their needs met quickly. A shared emotional connection is gained through the process of sharing experiences. Author's note: students are used to the top-down model of communication within a course. For technical issues, students want to be told what and how to do a task with a little encouragement to figure it out on their own. I strongly advise instructors to provide a mechanism to encourage participation in this forum. For example, I use extra-credit, participation, and professionalism points as a reward.

Blog a Self-Reflection on the Introductory Experience

Self-reflection blogs draw on the principle cognitive reappraisal (Berns 2010). If students can assess and share their experiences, then they will face the prospect of continuing to use the features of the LMS in the future. This act of self-reflection can further reinforce a sense of shared emotional connection. By enabling students to vent regarding issues they encounter and encouraging feedback, the result should be a feeling of commonality within the learning community. Assignment note: the assignment should enable students to vent their frustrations regarding the deployed features. Try to encourage a frank assessment. Ask the students to discuss their issues and include questions concerning usability and accessibility.

Match Assignments, Projects, and Assessments with the Most Effective Features

To maximize the course outcomes, an instructor needs to consider matching assignments, projects, and assessments to the most effective features. As course developers, it is important to select the appropriate technologies to serve as features for the course. The key strength of creating your own custom LMS using Web 2.0 technologies is the act of selection. Selecting the appropriate features for an LMS will encourage student engagement.

To illustrate, an instructor may assign a collaborative report and recommend collaboration tools. Many social networking sites offer the ability for users to create groups with a space for group activities, discussions, and chat rooms. However, third-party applications and services may be employed to share, draft, and edit documents. Google Documents is one option that can serve this function. Box.net can sync with Google Documents to enable embedding folders into the groups to increase productivity. Students can take advantage of collaborating either synchronously or asynchronously.

Design Activities That Enable Students to Socialize

Using a social networking site as an LMS provides students with a host of features that enable for socialization. For example, Ning offers integration with Twitter and Facebook. As such, it would be useful to incorporate social features into the course design. Communication enables participation, which enhances community building. Designing activities to encourage socialization builds community by fostering purpose (membership), accountability (influence), satisfaction (reinforcement), and empathy (shared emotional connection).

To illustrate, an instructor may have students who are reluctant to participate in discussions. Often it is difficult for instructors to coax out responses to questions presented in the online class, possibly due to a form of social anxiety or pressure. Students who are hesitant to participate often miss out on discussion benefits. An instructor might integrate micro-blogging into the course by posing questions on Twitter. Students can respond to these questions by posting from their laptop or Smartphone during the class session. The instructor then can select the best responses. Additionally, a student might have a question regarding the material. They could use the class Twitter feed to query the teacher without embarrassment (Reinhardt 2009).

Encourage Student Feedback throughout the Course

Instructors serve many roles within the LMS model: administrator, developer, and support technician (see Table 4). These roles are vital to the health of the online learning community. Therefore, an instructor must encourage feedback. For an online course to thrive, an instructor must have built-in mechanisms in order to intervene should an issue arise in the course. These mechanisms should provide the appropriate level of intervention based on the issue presented.

Table 4. Roles, Issues, and Intervention

Role	Issues	Intervention
Administrator	• Trolling • Harassment • Inappropriate conduct • Inappropriate content • Lack of participation	• Banning from network • Suspension from network • User-advocate • User-moderation
Developer	• Features • User Interface (UI) • Accessibility	• Documentation • Frequently asked questions (Discussion Board)
Support technician	• Access permissions • Troubleshooting	• E-mail support • Live chat support • Phone support • User-moderation

Based on the roles defined in Table 4, instructors are encouraged strongly to promote a level of self-governance within the user-created LMS. Instructors should consider training a select group of students to serve as advocates or moderators to help elicit feedback, facilitate technical support, and moderate discussions. Ultimately, the instructor decides how to implement intervention strategies.

Caveats to Consider Before Using This Model

A number of considerations must be made before using the social network as a model for developing a user-created LMS:

- Model is not a panacea for online learning.
- Model still requires some technical knowledge to develop.
- Model depends on the instructor to fill many roles.
- Model requires instructor to evaluate security.
- Model requires institutional support for costs.

Model Is Not a Panacea for Online Learning

The paradigm that guides this model is considered participatory and can be adapted to existing LMS. The crux of this model is user-participation. Adopting technologies that encourage user-participation should foster a more robust learning community. However, the driver of participation is the instructor. As such, this model is not a panacea for online learning.

What has been presented is a method to encourage instructors to adopt new technologies in order to design their own course based on fostering community. My goal was to demonstrate that instructors fill the role of a developer in order to deploy technologies that best fit the learning outcomes of the course. Additionally, I hoped to demonstrate that the key strength of Web 2.0 is the process of selection—using the best technologies to meet the needs of the instructor and the student.

Model Still Requires Some Technical Knowledge to Develop

I presented Web 2.0 as a set of technologies that make the Internet easier to use. Still, it is important to understand this model requires at minimum knowledge of HTML editing, embedding, and file uploading (depending on the service). Other useful skills (not required) include understanding meta-data, tagging, cascading style sheets (CSS), and design (graphics and user interface). Author's note: an instructor without this knowledge can still create a very good LMS. Most social-networking services provide easy-to-use templates. I stress these skills because they enable instructors to make the most of features on their sites.

Model Depends on the Instructor to Fill Many Roles

While I have described how this model can be used to increase the instructor's efficiency, it should be noted that this efficiency can be undermined by the number of roles the instructor is forced to assume—administrator, developer, and support technician. Typically, universities provide administrators, developers, and support through an in-house IT department or a contracted service. Providing these services guarantees the LMS is operating (or uptime) for the LMS. Most social-networking services have a high-level of uptime as their business model is dependent on reliability.

The advantage of a user-created LMS is low cost. Still, even without the insurance of guaranteed uptime, third-party applications and services are reliable. However, there is little-to-no recourse for system downtime due to maintenance, human error, or an act of God.

Model Requires Instructor to Evaluate Security

Security is an important issue that instructors who choose to develop their own LMS need to address. In this, it is imperative that instructors work closely with administrators to examine institutional policy regarding information security. Instructors also must practice due diligence to ensure the security of their students' personal information. The goal should be to provide a safe learning environment that enables students to openly participate without the fear of sharing too much personal data.

Model Requires Institutional Support for Costs

While I have described several free technologies, some applications with added services incur additional fees. Costs vary depending on the service. For my own courses, I use several added services. For reference, I provided an overview of monthly costs to manage an LMS in Table 5.

Table 5. Monthly Costs to Run a User-Created Learning Management System

Service	Description	Cost (U.S. dollars)
Ning-Plus*	Closed social network	$24.99
Engrade*	Online grade book	Free
Box.net—Business Plan*	File storage and drop box—500GB of storage	$15.99
Classmarker*	Assessment/testing	$16.50
Screencast.com*	Screencast capture and hosting	$ 9.95
*Free service available	Total cost per month	$67.43

To expect faculty to shoulder these costs without institutional assistance may be unrealistic. While these services provide free versions, I found them to carry a number of limitations, such as low bandwidth (amount of accessible data), limited number of users, and scaled-down features. However, many of these services can be used for multiple courses (except Ning-Plus). As such, it is feasible for an instructor to manage three courses for under $100 (U.S.) per month.

Recently, I have begun to test Coursekit, a free online LMS (adopted by Columbia, NYU, Stanford, and the University of Pennsylvania). The LMS offers many of the features of Ning-Plus, but also includes a course calendar, drop-box, and grade book. The LMS is very intuitive and easy to use; however, it does not provide an online forum for discussions, nor does it enable the embedding of third-party applications. Moreover, I have had some issues with the browser crashing periodically. I will say that the team at Coursekit has provided top-notch service to address issues (stunning considering that the product is free).

Conclusion

Through this article, I hoped to convey that instructors have the freedom to develop their own low-cost LMS, which provides a robust set of features and tools. With the recent paradigm shift to Web 2.0, instructors now have the capability to develop their own custom LMS using one of many widely available third-party social networking platforms. The array of new applications developed through the Web 2.0 paradigm can empower those with limited technical knowledge to create strong online learning communities through multiple modes of interaction (blogs, wikis, discussion boards, collaborative spaces, etc.). The new paradigm has the potential to foster greater student participation through a sense of community.

Instructors have numerous options when deciding to adopt an LMS. Many universities have adopted LMSs (such as Blackboard 9.1) to serve this function. These are fine tools; however, these proprietary applications can place a number of constraints on instructors and administrators alike—for example, limited features and tools and high costs.

Administrators need to examine the cost benefit of these applications while keeping in mind the goal of providing students with the best learning experience possible.

The implications of what I have discussed amounts to freedom of choice for administrators at metropolitan universities. Administrators now have the opportunity to encourage instructors to take complete control of their course delivery, unencumbered by rigid proprietary software. Instructors can now creatively select features that suit both the outcomes of the course and the learning preferences of their students. Features no longer need to be assembled into a prepackaged LMS. Instead, instructors can design their own LMS using inexpensive and readily available third-party applications.

The same approach to assembling an LMS could have implications for the development of e-portfolios. Students could create their own spaces (replete with an array of third-party applications featuring text, audio, and video) within a class social-network to inventory their work throughout the semester. Anecdotally, I have observed this potential application when assigning blogs for homework. I have required students to write rough drafts (section-by-section) of a long-form report using the blog feature in Ning-Plus. Moreover, I required students to elicit feedback for these drafts using the commenting feature. There is potential for students to develop an e-portfolio using social-networking applications. The benefit of using social networking is to create a rich collaborative experience for the students. As such, e-portfolios could become more of a social activity for students—sharing experiences through thought-provoking assignments that enable students to follow the learning development of their peers online.

Instructors and students alike can foster online learning communities that encourage multiple modes of participation. The net effects could best be described as an open classroom where students decide how they will access the course. The crux of what I am proposing is accessibility. Learning can happen anywhere, anytime. Instructors also do not have to sacrifice quality in the name of an online education. Instructors can exploit the strengths of using a social networking platform as an LMS: they can stay connected with students in much the same way popular social networking sites like Facebook and Google + have allowed us to stay connected with family and friends. This level of interaction is how we have come to define online presence. As such, this should be extended into the classroom.

References

Alexander, Bryan. 2006. "A New Way of Innovation for Teaching and Learning." *Educause Review* 41 (2): 32–44.

Anderson, Paul. 2007. "What is Web 2.0? Ideas, Technologies and Implications for Education." *JISC Technology and Standards Watch* no. 1: 2–64.

Berns, Gregory. 2010. *Iconoclast: A Neuroscientist Reveals How to Think Differently.* Boston: Harvard Business School Publishing.

Blood, Rebecca. 2004. "How Blogging Software Reshapes the Online Community." *Communications of the ACM* 47 (12): 53–55.

Browning, Paul, and Mike Lowndes. 2011. "JISC Techwatch Report: Content Management Systems." Accessed June 10. http://www.jisc.ac.uk/media/documents/techwatch/tsw_01-02.pdf.

Hart-Davidson, William. 2007. "Web 2.0: What Technical Communicators Should Know." *Intercom* 54 (8): 8–12.

Fuchs-Kittowski, Frank., and André. Köhler. 2005. "Wiki Communities in the Context of Work Processes." *WikiSym '05: Proceedings of the 2005 International Symposium on Wikis* (1): 33–39.

Liaw, Shu-Sheng. 2008. "Investigating Students' Perceived Satisfaction, Behavioral Intention, and Effectiveness of E-learning: A Case Study of the Blackboard System." *Computers & Education* 54: 864–873.

Landry, Brett J. L., Rodger Griffeth, and Sandra Hartman. 2000."Measuring Student Perceptions of Blackboard Using the Technology Acceptance Model." *Decision Sciences Journal of Innovative Education* 4 (1): 87–99.

Makela, Eetu, Kim Viljanen , Olli Alm , Jouni Tuominen, et al. 2007. "Enabling the Semantic Web with Ready-to-Use Web Widgets." In the Proceedings of the First Industrial Results of Semantic Technologies Workshop, 293: 56–59.

McMillian, David W., and David M. Chavis George. 1986. "Sense of Community: A Definition and Theory." *Journal of Community Psychology* 14 (1): 6–20.

O'Reilly, Tim. 2005. "What Is Web 2.0?" *O'Reilly Media*. Accessed April 14. http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html.

Rajesh, Lal. 2011. "Widgets for Web 2.0." Accessed June 10. http://www.widgets-gadgets.com/2007/08/what-is-web-widget.html.

Reinhardt, Wolfgang, Martin Ebner, Günter Beham, and Cristina Costa. 2009. "How People are Using Twitter During Conferences." *Proceedings of Edumedia Conference*, no. 1: 145–156.

Rheingold, Howard. 1993. *The Virtual Community: Homesteading on the Electronic Frontier.* Reading, MA: Addison-Wesley.

Riener, Cedar, and Daniel Willingham. 2009. "The Myth of Learning Styles." *The Magazine of Higher Learning* 42 (5): 32–35.

Smith, Marc A. 1992. "Voices from the WELL: The Logic of the Virtual Commons." Unpublished manuscript, accessed May 10. http://www.sscnet.ucla.edu/soc/csoc/papers/voices/Voices.htm.

Treese, Win. 2006. "Web 2.0: Is it Really Different?" *netWorker* 10 (2, June): 15–17.

Thacker, Christopher, and David Dayton. 2008. "Web 2.0 to Conduct Qualitative Research: A Conceptual Model." *Technical Communication* 55 (4): 383–391.

West, Richard E., Greg Waddoups, and Charles R. Graham. 2007. "Understanding the Experiences of Instructors as They Adopt a Course Management System." *Education Technology Research and Development* 55 (1): 1–26.

Author Information

Christopher Thacker holds both a master of arts in professional studies and a master of science in professional writing from Towson University. He currently serves as a full-time lecturer for the Business Cornerstone Program for the College of Business and Economics at Towson University.

Christopher Thacker
301M Stevens Hall
8000 York Road
Towson, MD 21252-0001
E-mail: cthacker@towson.edu
Telephone: 410-299-7791