Teaching and Learning with Cyberspace Media: Issues and Challenges

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ABSTRACT

Cyberspace media like Facebook, LinkedIn, Twitter, YouTube, and Blackboard are being increasingly embraced by institutions of all sizes and types to promote their products and services to their customers and to serve their customers once the customers buy into the products or services. Academic institutions have implemented Blackboard to make teaching by instructors and learning by students more efficient and effective. In spite of the fact that most students regularly use popular cyberspace media like Facebook, LinkedIn, Twitter, YouTube etc., their use for teaching and learning remains limited. This paper explores the opportunities available to use these media over and beyond Blackboard. An existing conceptual model has been improved to understand the interaction among Technology (an IT tool), Students, Professors, and Course contents. Furthermore, 3-M (Megaphone, Magnet, and Monitor) framework has been utilized to articulate how some teaching and learning goals can be effectively achieved with cyberspace media.

Keywords

Cyberspace, Facebook, Twitter, YouTube, Technology, Student, Professor, Course Content, Megaphone, Magnet, Monitor

INTRODUCTION

Cyberspace Media has the potential to connect a user to millions of people throughout the world. Cyberspace media that can be used in classroom include blackboard, twitter chats using #hashtags, private or public Facebook groups, LinkedIn groups. These can be exclusive to a class or open to alumni. Students can get endorsements from Professors on LinkedIn. Graduating students must note that almost eighty percent of the employers are sourcing candidates from cyberspace media networks – 74% use LinkedIn, 55% use Facebook, 45% use Twitter. In this context, it is important that students do acquire adequate skills in utilizing these networks effectively in the classroom.

Facebook is a social networking site that must be managed and utilized properly to be effective. This includes:

- not posting unprofessional pictures of oneself or others,
- asking friends to remove any inappropriate pictures,
- being careful about what a person writes and what others write about and to that person,
- using appropriate profile privacy securities features,
- making multiple friends lists with different permissions, and
- being aware of who a person is “friending”.

LinkedIn is for professional networking where one can establish expertise by:

- posting professional profile,
- gathering and posting endorsements and recommendations,
- using Q&A to answer questions and post questions to get answers,
- be appropriately visible,
- staying in touch with one’s network professionally,
- helping others,
- sending invitations to connect to people relevant to one’s field,
• growing the network online and offline,
• joining and starting groups to share information.

**Twitter** is more conversational networking site than Facebook or LinkedIn. Seventy five percent messages relate to engaging one’s followers, replying and re-tweets; while about twenty five percent are promotional. On Twitter, either one follows other people or are is followed by other people. People one follows can be potential employers, career professionals, business and industry leaders, publications. For job seeking on Twitter, hash tags that can be followed include #jobs, #jobseekers, #careers, #jobsearch.

In the context of teaching and learning, **Blackboard** is a popular cyberspace media that is popular in several institutions. Blackboard tools include Announcements, Tasks, My Grades, Send Email, User Directory, Address Book, Calendar, Browse NBA Archives, Goals, NBA Archives Playlist. Within a course, syllabus, additional readings, Lectures, PowerPoint Slides, Homework Assignments can be posted. Within a course, one can also use Discussion Boards, Groups, Tools, Grade Center besides others.

• Discussion Boards are forums that are made up of individual discussion threads that can be organized around a particular subject. Create Forums to organize discussions.
• Groups allow Instructors to organize Students into Groups of any size. Instructors can provide communication and collaboration tools that only Group members can access. Groups can be created one at a time or in sets. Groups can be designated as Self-Enroll, allowing students to add themselves to a Group, or Manual Enroll, or have the Instructor assign students to a Group.
• Tools allow students to access Announcements, Blackboard Help, Blogs (create and manage), Calendar, Collaboration (Virtual Classroom & Chat sessions), Contacts, Course Portfolios, Discussion Board, Glossary, Groups, Journal, Live-Text-SSO, McGraw Hill Products, Messages, My Grades, Net Tutor, Portfolios Homepage, Roster, Send Email, Tasks, Turning Point Registration, White Board, Wikis, Wimba Pronto, and Worldwide Whiteboard.
• Grade Center allows Professors to post and manage grades.

**CONCEPTUAL MODEL FOR TEACHING WITH TECHNOLOGY**

Figure 1 below is modified from a conceptual model that was accessed on Sat, Dec. 8, 2012 from [http://www.crlt.umich.edu/inst/model](http://www.crlt.umich.edu/inst/model).
This model has been adapted and modified from Zhu & Kaplan (2001). According to this model, teaching with technology involves four components – students, professor, course content, and technology tools. We can examine sub-components within each component to make technology integration as successful as possible for effective teaching by Professors and learning by students. This model assumes that changes in one component will require adjustments to the other three in order to achieve pedagogical goals. This model was utilized by Made Hery Santosa (2008). In the modified model below, we assume that the students have access to the technology under consideration and the Professor has adequate time to learn and use the technology.

Cognitive/Learning style

Cognitive style refers to the way an individual collects, analyzes, evaluates, and interprets data. Coventry (1989) found evidence to imply that cognitive style affects how people learn about a system and what they learn. Ornstein (1977) differentiates between analytic thinking which implies processing information in an ordered, linear sequence, and holistic thinking which involves viewing the whole situation at once in order to facilitate the synthesis of all available information. These approaches essentially refer to the rational and intuitive sides of the individual. In keeping with established terminology, however, these modes of cognition are labeled ‘analytic’ and ‘intuitive’ respectively. It has been suggested in literature that people exhibit a continuum of learning styles from intuitive to quasi-intuitive to adaptive to quasi-analytic to analytic. According to Felder and Silverman (1988), students learn in many ways— by seeing and hearing; reflecting and acting; reasoning logically and intuitively; memorizing and visualizing and drawing analogies and building mathematical models; steadily and in fits and starts. Davis and Davis (1990) found intuitive thinkers to outperform all other cognitive styles in a computer training environment. There is evidence that knowledge of a person’s cognitive style is valuable in selection, placement, careers guidance, task design, team composition, conflict management, mentoring and training and development. A given student’s learning in a class is governed in part by that student’s native ability and prior preparation but also by the
compatibility of his or her learning style and the instructor’s teaching style. Felder and Silverman (June, 2002), after more thinking and reflection classified learning styles on four dimensions: Sensing/Intuiting, Visual/Verbal, Active/Reflective, and Sequential/Global. They dropped the inductive/deductive dimension.

Teaching style

Teaching styles also vary --- lectures, demonstrations, discussions; principles driven versus applications driven; memory emphasis versus understanding emphasis.

Technology skill level

In several areas of human endeavor, people with varying levels of skills in doing certain tasks or jobs are classified as experts, intermediates, or beginners. Skill level in using a specific technology will determine the speed with which that technology is adopted, used, and assimilated in ongoing activities. It should be noted that skill level changes with use of a technology – beginners become intermediates and intermediates become experts over time.

Discipline

Course contents can belong to any of the broad disciplines – Liberal Arts, Engineering, Science, Business, Medicine, Computer Science, Management Information Systems. Nature of a discipline may demand different kinds of student skills to learn and Professor’s preparation to teach. A discipline can differ in level of structure, age, abstraction, technical content, and so on.

Learning outcomes

In 1956, Benjamin Bloom headed a group of educational psychologists who developed a classification of levels of intellectual behavior important in learning. During the 1990s a new group of cognitive psychologist, led by Lorin Anderson (a former student of Bloom’s), updated the taxonomy reflecting relevance to 21st century work. The graphic is a representation of the NEW verbiage associated with the long familiar Bloom’s Taxonomy. Note the change from Nouns to Verbs to describe the different levels of the taxonomy.
### Remembering:
can the student recall or remember the information?
- define, duplicate, list, memorize, recall, repeat, reproduce state

### Understanding:
can the student explain ideas or concepts?
- classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, paraphrase

### Applying:
can the student use the information in a new way?
- choose, demonstrate, dramatize, employ, illustrate, interpret, operate, schedule, sketch, solve, use, write.

### Analyzing:
can the student distinguish between the different parts?
- appraise, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, test.

### Evaluating:
can the student justify a stand or decision?
- appraise, argue, defend, judge, select, support, value, evaluate

### Creating:
can the student create new product or point of view?
- assemble, construct, create, design, develop, formulate, write.

### Figure 2: Learning Outcomes

### Technology type
This can vary from use of iPads, e-Books, e-mails, Smart Phone, Skype, Survey Monkey, MS-Office software and so on. Technology type will determine the possible pedagogical uses for teaching and learning.

### Perceived usefulness and perceived ease of use of technology
Perceived usefulness can be defined as the subjective probability of an individual’s increase in his or her job performance within an organizational context by using a specific technology application like Blackboard or an iPad app. Perceived ease of use assesses the degree to which a technology application is perceived to be easy to use – not requiring significant training.

In the technology acceptance model, Davis F.D. et al (1989) validated two key determinants of technology use: perceived usefulness (PU) and perceived ease of use (EOU). The perceived usefulness construct parallels relative advantage and perceived ease of use parallels complexity (Davis, et al., 1989; Karahanna, et al., 1999). These two constructs constitute the major determinants of user attitude, which mediates the relationship to user intention (Figure 3). There is also a direct link between perceived usefulness and behavioral intention. The rationale is that irrespective of attitude, positive belief of usefulness can lead to positive usage intention.
We conceptualize student interaction management in a Megaphone, Magnet, and Monitor (3-M) framework (Gallauger and Ransbotham (2010)), with the Megaphone representing Professor-to-Student communication, the Magnet Student-to-Professor communication and the Monitor Student-to-Student interaction. This framework provides a structure for understanding the opportunities and risks presented by cyberspace networking to further the cause of teaching and learning.

Before the advent of Web 2.0, Professor-to-Student communication occurred either individually in Professor’s office or by phone call or by e-mail or in a group in the classroom or through a broadcast e-mail messages. Student-to-Professor communication happened primarily individually in the classroom or in the Professor’s office or rarely by phone call or by e-mail. In the pre-Web 2.0 environment, Professors got the opportunity to learn from student-to-student communications only while attending some rare group events like sporting, homecoming, or cultural events – and that too perhaps never on pedagogical issues or concerns. Cyberspace media has a promise to change that.

Figure 4, adapted from Gallauger and Ransbotham (2010), depicts the existing and potential communication paths between a Professor and his/her Students. Arrows indicate the direction of information flow. Thick lines signify existing relationships enhanced by cyberspace media. Professors and Students have always been able to observe their own relationships, whether initiated by the Professor (line A) or by the Student (line B); cyberspace media enhance these relationships. Thin lines signify new potential relationships. Other Professors (line C) or other Students (line D) can monitor Professor-Student and Student-Professor interactions. Professors can monitor (line F) interactions between focal Students and other Students (line E).
Tables 1, 2, and 3 conceptualize student interaction management in a Megaphone, Magnet, and Monitor (3-M) framework, with the Megaphone representing Professor-to-Student communication (Table 1), the Magnet representing Student-to-Professor communication (Table 2) and the Monitor for Student-to-Student interaction (Table 3). These tables have been adapted to Teaching and Learning from John Gallaugher and Sam Ransbotham (2010). For each of the three types of interactions – Megaphone, Magnet, and Monitor -- four possible initiatives are described. These initiatives are: Teaching-Innovation-Ideas (university wide), Facebook, Twitter, and YouTube. This framework provides a structure for understanding the opportunities and risks presented by cyberspace media. Universities that have implemented Blackboard can use the Discussion and Group tools among Professors and Students to generate innovation ideas. All instructors and students over the years can contribute ideas to this site. This could be a treasure from which Professors can pull ideas to implement for a specific class and/or for a specific set of students. University-owned site can be particularly effective because ownership offers control over design and contents. Students and professors and staff can receive operating parameters (e.g., the site is for university-wide ideas). Managers of this site can encourage positive behavior among participants. Recognition and awards can be offered periodically for top innovation ideas.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>How Professors can use the Megaphone</th>
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</thead>
<tbody>
<tr>
<td>Teaching-Innovation-Ideas through Blackboard</td>
<td>Use outbound messages, promoting student-catalyzed innovation</td>
</tr>
<tr>
<td></td>
<td>Share information on student-suggested innovations</td>
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<td></td>
<td>Create anticipation for forthcoming class projects</td>
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<td></td>
<td>Promote the Professor’s commitment to empowering the “student voice”</td>
</tr>
<tr>
<td>Facebook</td>
<td>Connects with hundreds to thousands of current and past students (alumni) making it the largest Professor network page</td>
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<tr>
<td></td>
<td>Updates current students and alumni via news feed, including announcements (e.g., Commencement Day), cause awareness (e.g., Professor’s latest research or consulting project), Professor-posted videos and images</td>
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<tr>
<td></td>
<td>Offers discussions on topics Professor wants to encourage</td>
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<td></td>
<td>Provides a platform to share photos, video, and news of upcoming events – Internship and Job Opportunities, Cultural and Sports events</td>
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<tr>
<td>Twitter</td>
<td>Broadcasts Professor’s latest ideas and philosophies (e.g., Live, Listen, Learn, Laugh)</td>
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<tr>
<td></td>
<td>Pushes university’s latest success story through tweets to current students and alumni</td>
</tr>
<tr>
<td>YouTube</td>
<td>Maintains a university channel through which Professors can publicize documentaries on corporate social responsibility</td>
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Table 1: Using Cyberspace Media as a Megaphone for Teaching and Learning
<table>
<thead>
<tr>
<th>Initiative</th>
<th>How Professors can use as a Magnet</th>
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<tbody>
<tr>
<td>Teaching-Innovation-Ideas through Blackboard</td>
<td>Enables students to share ideas with the Professor and vote on ideas offered by other Professors</td>
</tr>
<tr>
<td></td>
<td>Can yield hundreds of ideas during a year; dozens can be implemented after checking for their viability</td>
</tr>
<tr>
<td></td>
<td>Can attract hundreds of visitors</td>
</tr>
<tr>
<td>Facebook</td>
<td>Draws praise, complaints, support requests, and other suggestions</td>
</tr>
<tr>
<td></td>
<td>Focuses attention on the Professor’s wall, where content can be managed</td>
</tr>
<tr>
<td></td>
<td>Can attracts hundreds of current students and alumni</td>
</tr>
<tr>
<td></td>
<td>Lets students comment on Professors’ messages in Student news feeds</td>
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<tr>
<td></td>
<td>Provides an easy way for students to opt-in to Megaphone messages</td>
</tr>
<tr>
<td>Twitter</td>
<td>Provides an opt-in platform for hundreds of student followers</td>
</tr>
<tr>
<td></td>
<td>Creates a visible venue to share praise, request support, and send suggestions</td>
</tr>
<tr>
<td></td>
<td>Allows venting of complaints in a relatively ephemeral medium</td>
</tr>
<tr>
<td>YouTube</td>
<td>Captures student-submitted videos</td>
</tr>
<tr>
<td></td>
<td>Serves as an outlet for student-submitted video campaigns</td>
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<tr>
<td></td>
<td>Collects student-submitted suggestions</td>
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Table 2: Using Social Media as a Magnet by the Professor
<table>
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<tr>
<th>Initiative</th>
<th>How Professors can use as a Monitor</th>
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</table>
| Teaching-Innovation-Ideas through Blackboard | Establishes a forum for inter-student dialog  
Promotes inter-student dialog, both through messages and idea voting (up or down)  
Provide metrics on activity, idea popularity, and drill-down for exploring conversation thread detail  
Manage dialog (including observing or conversation shaping) with the help of different features of Blackboard |
| Facebook                               | Measures exposure, showing student activity and demographics, and demonstrating campaign-related actions (e.g., click-throughs, page visits or “Likes”)  
Indicates trends involving students who ignored content or who have chosen to stop following as fans  
Catalyzes student-to-student conversation, with “Likes” and news feed comments visible in a Professor’s friend base, generating more conversation  
Stimulates discussion among students; everyone can see and comment on the wall posts that are made within the forum |
| Twitter                                | Provides metrics such as keyword mentions and re-tweets as well as inbound activity (e.g., click-throughs) generated from Twitter campaigns  
Offers insights on campaign click-throughs and student sentiment  
Suggests hashtags to followers, allowing students themselves to further monitor student dialog around specific topics and issues  
Allows Professors and administration to react, issuing praise, apology, correction, and offers of help  
Provides insight on competitor university or another Professor’s activities, exposes problems to address or capitalize on, and creates opportunities to learn from others |
| YouTube                                | Gauges the success of offerings through view statistics and comment activity  
Allows for student-to-student dialog in comment areas |

Table 3: Using Cyberspace Media as a Monitor by the Professor

REFERENCES: