*Journal of Information Systems Education, Vol. 18(3)*

# Outcome-Driven Experiential Learning with Web 2.0

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**ABSTRACT**

Experiential learning, an effective pedagogical method in MIS and other business courses, has been limited by instructional formats and teaching resources. But with the advent of Web 2.0 and its rich set of social networking and mass authoring tools, a shift in learning structure in content, process, and outcome is emerging. In this paper, we propose an experience-based, outcome-driven pedagogical model that is particularly suited for MBA courses, and offer case studies to exemplify such implementations. We also discuss the advantages and challenges with this model based on our initial experience.

**Keywords**: Experiential learning, Web 2.0, Outcome-driven learning model, MIS

## 1. INTRODUCTION

Experience is a powerful medium for learning. Experiential learning, referring to the encounter that learners experience, has received much attention among scholars and practitioners as an effective way of instruction (Biggs, 2003; Kolb, 1984; Laurillard, 2002; Lave and Wenger, 1991; Schön, 1987). For business management programs and management information systems (MIS) curricula, schemes and media have been proposed to apply this methodology, such as case studies (Gackowski, 2003; Hackney et al., 2003; Kerr et al., 2003), games and simulations (Connoly and Stansfield, 2006; Nuldén and Scheepers, 2002), student-driven approach (McBride, 2005), and consulting projects and business plans (Huang, 2006; Tabor, 2005). Properly designed and executed, experiential learning can not only be used to supplement other teaching methods but play the main role of achieving desired outcome of a course. But due to many restrictions, not the least of which are the limited instructional resources offered by the traditional teaching environment, truly experience-based courses are difficult to implement. Addressing these limitations, such as reconciling the differences between online and classroom teaching (Buzzetto-More and Alad, 2006; Heinze and Procter, 2006; van der Rhee et al., 2007), often demands attention by instructors and distracts them from focusing on the truly important learning goals.

In this paper, we propose a different approach to achieve experiential learning by taking advantage of tools made available by Web 2.0. With its many forms such as social networking and mass collaboration, Web 2.0 has had a great impact on the everyday life of people, the younger generation in North America in particular, and is slowly changing the way business is conducted. A few early adopters in education, recognizing the potential of Web 2.0 and its associated tools, have also incorporated the concepts and practices (Chaker, 2007; Turban et al., 2007). We argue that, when applied to business education and MIS courses, these tools affect a significant shift in instructional structure, enabling an experience-based pedagogical model that is driven by learning goals. This new approach enables instructors to design and structure courses based on desired learning outcomes, not instructional formats.

The rest of the paper is presented as follows. We first provide an overview of Web 2.0 as well as the associated tools that can be used in an educational environment. We then propose an experience-based, outcome-driven pedagogical model and describe its implementation using case studies. Finally, we discuss the advantages and challenges of the model, and offer some directions for future research.

## 2. WEB 2.0 AND BUSINESS EDUCATION

A phrase coined by Tim O'Reilly of O'Reilly Media in 2004, Web 2.0 refers to the "second generation" of Web-based services that emphasize online collaboration and sharing among users (O'Reilly, 2005). Some regard Web 2.0 as "participation web," as opposed to the original web as mostly information sources (Decrum, 2006). Its exact meaning remains open to debate, but the term often refers to one or all of the following:

- The transition of websites from isolated information silos to platforms of growing content and functionality,

with an architecture of participation that allows users to contribute, manage, share, and own their data;
- A social networking phenomenon embracing an approach to generating and distributing web content in an open, decentralized, and conversational fashion by and for end users; and
- Use of improved worldwide web technologies such as weblogs, social bookmarking, wikis, podcasts, online videos, RSS feeds (and other forms of many-to-many publishing), social software, and other web services.

Since late 1990s, websites that embody such characteristics—MySpace, wikipedia, del.icio.us, SecondLife, and YouTube are some of the most prominent examples—have been created and often thrived. In addition to those websites, concepts and techniques of Web 2.0 have been adopted by broad-based Internet service companies such as Yahoo!, Google, and eBay. More recently, companies are also starting to embrace Web 2.0 as a tool for conducting businesses in both internal operations and external customer and vendor relationships (Carr, 2007; McAfee, 2006; King, 2006).

### 2.1 Web 2.0 as Learning Tools

As influential as it seems to the business and social use of the Internet, Web 2.0 also offers tools that can enable new approaches to education. This potential has just begun to be recognized among educators (Lawton, 2007), as indicated by the inclusion of Web 2.0 concepts in a recently published MIS textbook for the first time (Turban et al., 2007). In this section, we discuss a few of these tools and their implications. As tools are being updated frequently and new ones are being created often, this list is by no means exhaustive. Other web 2.0 applications, such as RSS and social tagging, can have interesting educational value as well. Rather, it only offers a snapshot of what we believe can be readily adopted in an MIS or business course.

**2.1.1 Weblogs** Weblog (or blog for short) is an online journal or diary, presented in a reverse chronological order, kept and updated by the author (the "blogger") and open to view and comment by others online. The underlying technology is not sophisticated, but the impact is significant. Anyone with an interest in offering his or her knowledge or opinions on any topic can do so with a weblog, and a lively online discussion can be generated as a result. And access to blogs can be open or closed, depending on the settings the blogger prefers. This is arguably the most popular Web 2.0 tool among business faculty, because it is easy to set up and enables timely update and dissemination of information. For instance, an MIS professor can use a blog to post important events and their analysis for an MIS course, and students can read, comment, and discuss the postings at their convenience, extending the educational experience beyond face time. Such a weblog can be done on public Internet access for free (via providers such as blogger.com or vox.com), or it can be hosted on a private server with off-the-shelf software.

**2.1.2 Wikis** A wiki refers to (1) a website that allows visitors to add, delete, and otherwise edit all available content, with or without the need for registration, or (2) the collaborative software itself—the so-called "wiki engine"—that facilitates the operation of such a web site. The ease and the open, unsupervised nature of interaction and operation make a wiki an effective tool for mass collaborative authoring. There are multiple ways that a wiki can be used for an MIS course. "Wikipedia," perhaps the most popular and famous wiki, is an excellent source for technology trends and terms, because it is composed, edited, and updated by many of the tech-savvy visitors. Alternatively, instructors can maintain wikis for the courses they teach; and by allowing other instructors or even students to contribute, such wikis can have rich and up-to-date content. Wikis can be implemented either on the web or as an application hosted on a private server. In addition, course management software such as Blackboard now includes wiki and blog capabilities within their platforms.

**2.1.3 Office 2.0** Web-based office productivity applications, such as Google's Docs and Spreadsheet and Thinkfree Office, are taking shape and gaining popularity. Compared with the traditional office applications such as the Microsoft Office suite, these "Office 2.0" applications allow users to perform office tasks such as word processing or spreadsheet calculations over the Internet. Files can be created, modified, and stored online, eliminating the need for keeping a local copy of both programs and documents. Perhaps more interesting as a potential instructional resource, Office 2.0 applications allow users to share or even publish their work. This provides a suitable platform for team projects. To collaborate on the financial analysis of an IT project, for instance, a group of students can work on a common online spreadsheet, which tracks changes and can sometimes accommodate communicating comments among group members. Many of these Office 2.0 applications are free, and users can control the level of access.

**2.1.4 Online Video** Free video upload and sharing sites, as well as wide availability of broadband Internet access, have facilitated the use of online video. As an educational tool, instructors can use them for case discussion and illustrating concepts and applications in business classes. There are many business videos, professionally or privately made, available on YouTube, Google Video, and such individual sites as Executive Talks with Christian Grant (www.executivetalks.com); selected guest lectures are also available on university web pages (such the MIT World video site at http://mitworld.mit.edu/video_index.php). For example, the highest rated (at the time of writing this paper) Google Video under the business genre is a half-hour 2005 presentation by Dave Bowen, then the CIO of Blue Shield, discussing the CIO's role, IT priorities, aligning business strategy and IT investments, and challenges in leading a large IT organization. Adopted appropriately, such video resources can enrich business classes significantly. And the use of online video also provides an opportunity to discuss intellectual property rights for new media on the web.[1]

### 2.2 Benefits and Risks of Web 2.0 Tools in Education

An immediate benefit of adopting Web 2.0 tools in business education is a direct response to changes in student information literacy and expectations. College students constitute, for example, the majority of the more than 25 million members of Facebook.com (Nicole, 2007). In an

informal survey of one of the author's classes (in February 2007), more than 60% of the students have either Facebook or MySpace account (or both), and about 40% visit online video sites such as YouTube on a daily basis. In such an environment where Web 2.0 is becoming an indispensible part of the students' daily lives, it would be appropriate to take advantage of this trend by making these applications into learning tools.

Cost is another benefit. Many Web 2.0 tools, such as blogs and wikis, are publicly available online or as a download for free or nominal charges. Thus, the decision to adopt these tools in a class can often be made strictly based on learning needs, free from budgetary constraints.

An obvious risk associated with Web 2.0, however, is privacy. By nature, most Web 2.0 applications are openly accessible online. Student entries, therefore, are easily viewable by people outside of the course, and access controls are subject to any miscue by the operators similar to the Facebook incident in 2006 (Boyd, 2006). To mitigate such privacy risks, one can host Web 2.0 tools (such as TWiki and Wordpress) on university servers instead of using web-based applications. An alternative implementation is to use the Web 2.0 tools offered within commercially available online education platforms. As previously mentioned, Blackboard, for example, has blog and wiki tools built in since 2006.

Finally, supporting Web 2.0 applications (or the perception of support) can be a challenge. The reliability and availability of publicly available Web 2.0 tools cannot be guaranteed and are out of the control of the university personnel. Further, if a tool is tightly integrated with a course, students may mistakenly assume that the university IT would support the tool and get frustrated when problems cannot be resolved. Similar to the privacy risk, the support issue can be addressed by hosting the applications in-house or by using a commercial platform.

## 3. EXPERIENTIAL LEARNING WITH WEB 2.0

### 3.1 Background and Motivation

Although not obvious at first glance, Web 2.0 and its associated tools can have a much greater impact, well beyond the role of supporting or complementing other instructional methods, on business education. They effect significant changes in the learning content, process, and outcome:

- Learning content: from scarce to abundant;
- Learning process: from traditional to experiential;
- Learning outcome: from knowledge acquisition to knowledge integration.

The traditional teaching model was designed to maximize the effect of two key learning resources—namely knowledge, kept mostly by instructors, and ability to seek out new information, maintained by students but enhanced by instructional tools, both of which are scarce. In such a model, which applied equally to in-class, online, or hybrid format, instructors teach students what they know, with the help of instructional tools such as library, teaching assistant, informational websites, and software. But neither the knowledge nor the information seeking ability is scarce in the current setting. Many instructors and industry practitioners maintain their own blogs online for all to see; instructional materials such as videos and simulation games are widely available; and search engines and wikis make finding information easy. Perhaps more indicative of the shift and far-reaching in the impact, a growing number of universities, pioneered by the Massachusetts Institute of Technology through its MIT Courseware program, now offer up complete course materials, including lecture notes, audio and video recording of lectures, assignments, tests, references, and so on, for open access online (Chaker, 2007).

As the instructional resources are made abundant, the value of content delivery in the classroom or an online forum, focus of the traditional learning process, seems less because of the widely available knowledge and tools for searching, aggregating, and customizing information. Many Web 2.0 components offer opportunities well beyond traditional tools such as case study and systems project for students to experience or practice various aspects of the use of information systems in business. An e-commerce assignment, for instance, can conceivably involve joint-concept development using a wiki, project management with blogs and online spreadsheet, prototyping sharing via video, live testing the website on a hosting service, and analyzing the traffic with live web statistics. All these can be done with publicly available, mostly free of charge, resources on the web. Such a mode of instruction would shift the focus of learning process from delivery of knowledge to experiential learning, and allow the learning outcome to transcend from knowledge acquisition to knowledge integration. In the next section, we propose a pedagogical model to take advantage of the changes effected by the Web 2.0 tools in business and MIS curricula.

### 3.2 The Pedagogical Model

The new learning structure of abundant learning resources and content, experiential learning process, and knowledge integration learning outcome enables us to develop and teach MIS and business courses based on the time-tested business management approach, in which goals are set first, strategies for achieving goals follow, and tactics for executing the strategies are then determined (Mintzberg, 1987; Porter, 1985). Our pedagogical model is driven by the desired outcomes, or learning goals, for a course. For every desired outcome, we look for appropriate instructional channels such as lecture, project, assignment, and assessment that constitute the experiential learning strategy for achieving that learning goal. Then, we select the available tools (Web 2.0, traditional, and so on) that best match the channel requirements as tactics to execute the instructional strategy. The model is summarized in Figure 1.

This experience-based pedagogical model is a considerable deviation from the traditional approach, where learning outcomes are often limited by, and thus follow the resource and format constraints an instructor face. For instance, the classroom format is necessarily lecture and/or discussion based, while online teaching is frequently limited by the tools that the software platform provides. Our model, however, takes advantage of the abundant resources that Web 2.0 offers and does not depend on a particular format. To illustrate how it works, we offer two case studies based on actual instructions: One applies this model to an entire class, and the other uses this model to supplement the course delivery.

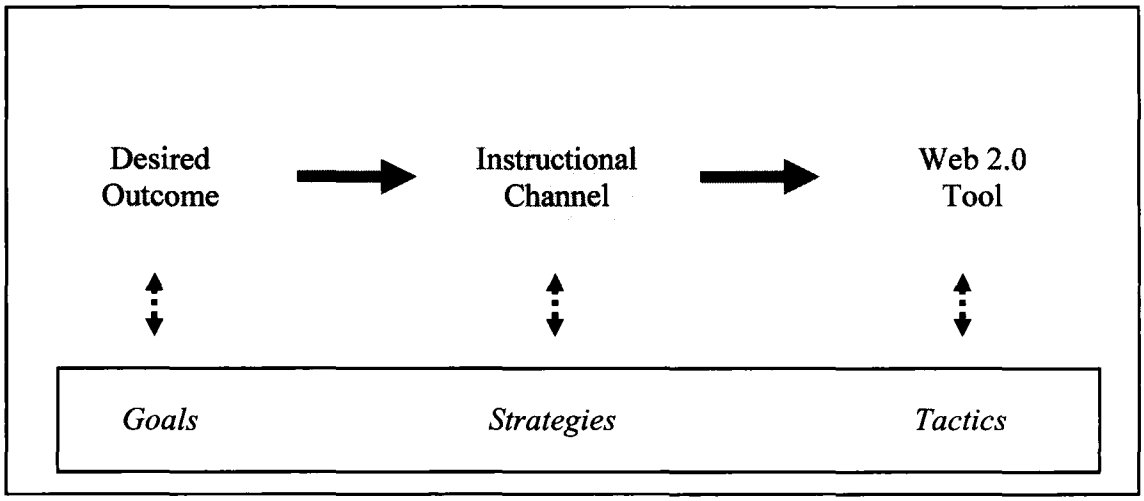


**Figure 1. Experiential Learning Based Pedagogy Model**

**3.3 Case Study: MBA-Level E-Commerce Course**

One of the authors teaches an MBA-level e-commerce course on an annual basis in a classroom setting. In previous years, a mixture of lectures and cases were used to cover topical subjects of e-commerce, anchored by a business-plan project (Huang, 2006). Prompted by the popularity of Web 2.0, the experiential learning-based model is fully adopted in the Spring 2007 semester to design the whole course (see Appendix 1 for a course outline). First, three desired outcomes for this e-commerce course are identified: skills in developing e-business, ability to evaluate e-business ideas, and critical survey of current e-commerce technologies and trends. We then structure the course driven by these outcomes, as summarized in Table 1.

The e-business development skills—the main driver of the course—are developed through direct experience: we require the students, working in teams, to select a business idea, produce a business plan, and create a live website for testing purpose. The assignment of writing a business plan is accomplished through the use of traditional tools, such as lectures and business plan templates, and Web 2.0 tools, such as using an Office 2.0 application (Google Docs and Spreadsheet, in our case) for collaboration. The Office 2.0 tool not only allows sharing, but also enables near-real-time interactions among the students and between students and the instructor in problem solving and progress checking. After they complete the business plans and make presentations in class, the teams are expected to implement their business ideas live, using a free hosting service such as Microsoft OfficeLive basic, to test the performance and usability of their implementation. With these tools, our instructional focus is to facilitate the students' learning of skills through actual experience of e-business development.

To accomplish the second desired outcome, the ability to evaluate e-business ideas, we use a combination of Harvard cases and real websites as basis for discussions in class. Each student is required to maintain an individual blog that records their research and analysis of the assigned cases or websites, and others can comment or inquire on the blog entries. (We select vox.com for its ease of use and ability to control access.) In so doing, most of the "class discussions" on the assigned cases or websites happen outside of the classroom. For instance, to cover the business models of Web 2.0 services, students are required to register with and use sites such as Facebook.com, Runescape.com, and SecondLife.com and to report and discuss their findings in their blogs. Students can learn through actual experience of using, researching, and conversing on new and/or live businesses. This leaves the class meeting to cover a few key issues that emerge from the blogging. We developed a rubric, using previous e-assessment studies as guidelines (Buzzetto-More and Alad, 2006; Hazari, 2004), to evaluate the quality of their blog entries on the analysis of various cases (see Appendix 2).

| Desired Learning Outcome for the Course | Instructional Channel | Instructional Tools |
|---|---|---|
| Skills in developing an e-business | Team project—business plan composition | Google Docs and Spreadsheet |
| | Team project—live test website | Microsoft OfficeLive |
| Ability to evaluate e-business ideas | Class discussion | Blog on vox.com; cases |
| | Assessment | Website evaluation |
| Critical survey of current e-commerce technologies and trends | Class discussion | Google Group; Google Notes; cases |
| | Class project/assessment | TWiki |

**Table 1. E-Commerce Course Structure** (Full implementation of pedagogical model)

To effectively cover the critical survey of e-commerce components, we choose to forego the use of a textbook, which is static and often out-of-date. Instead, we assign one topic each week such as Internet marketing, information security, social networking, and mobile commerce. The students are responsible for finding and sharing the materials associated with that topic before the class meeting. Articles and comments are shared on a group site, while useful websites are recorded with a social bookmarking tool (we use Google Group and Google Notes, respectively). In such a setting, in-class lectures are no longer necessary, and the time saved can be devoted to discussions of key issues associated with the assigned topics. In addition, the class as a whole works on completing an "e-commerce wiki" (using TWiki hosted on a university server). The instructor picks the topics and assigns the key terms; the students add to, edit, and even organize the content throughout the semester. The students are graded on their performance in online and classroom participations as well as the quality of their wiki contributions.

As the first-time application of this pedagogical model to a course, it is more of an experiment than a full implementation. Students' feedback are positive in general, although they complain about the work load and extra efforts involved. This is understandable, given the unfamiliar and highly participatory nature of this instructional model. This aspect will be further discussed in Section 4.

### 3.4 Case Study: MBA-Level Operations Management Course

The other author teaches the core MBA course in operations management. Contrary to the e-commerce course, operations management contains topics that are appropriately covered with traditional methods such as lectures, case studies, problem solving and technology demonstrations. Therefore, the author selectively applies the pedagogical model to achieve desired learning outcomes as described in Table 2.

The instructional channel to achieve the outcome of an increased appreciation of the operations functions is an assignment in which students search, analyze, and discuss a timely, interesting, and relevant operational situation that students choose. In addition to web searches and online subscriptions to news sources, students are required to use a social bookmarking service, in this case Digg.com, to publish their findings. They are expected to post their operations stories to Digg.com under its Business and Finance section, reply to comments that they receive, and comment on the stories that others (not necessarily those from the class) have posted. Beyond the expected instructional values that such an assignment delivers, this tool brings alive many of the concepts introduced in class in a real-world setting. In addition, the students are motivated to get involved in a community of professionals with similar interests, an activity hopefully to be carried to the rest of the program and beyond. An alternative approach to this assignment, also adopted in this course, is one in which students are required to read the current business press, summarize articles with a significant operations emphasis, and post on the blog available within the course Blackboard site. These tools provide a platform in which learning in one section can be shared with those in other and subsequent sections of the course, a continuity that seldom exists in most teaching environments. Additionally, the blog on Blackboard allows greater control over the content, where selective entries can be archived for successive classes. To evaluate this assignment, the quality of the article posted is the main evaluation criterion in the Digg.com approach in this assignment, while traditional methods for evaluating short or summary papers are used for the Blackboard blogs.

Case studies are used by many business courses, but not all schools have the capability of hearing from the CEOs of the company on which the case is based. Online streaming video technology, coupled with the open-access nature in some institutions such as MIT, provides an alternative. Specifically, this course uses the Harvard Business School case study entitled "Phase Zero: Introducing New Services at IDEO (A)" (HBS #605069) as a vehicle to discuss service design. The case discussion is followed by a video presentation, "Innovation through Design Thinking," by the CEO of IDEO available at Mitworld.mit.edu/video/357, which frames the entire discussion effectively. Online videos can also be used as a mechanism to have "virtual" guest speakers. The talk on "The World is Flat" by Thomas Friedman has provided an excellent approach through which the rapid globalization of business can be appreciated by students. It helps alleviate a US-centric perspective through the eyes of a widely-read US columnist. The one obvious limitation is that the students cannot interact with the speaker after the presentation. This can be mitigated by the instructor being well prepared on the issues in the presentation to act as a "surrogate" to the extent possible.

| Selected Desired Learning Outcomes | Instructional Channel | Instructional Tools |
|---|---|---|
| Increased appreciation of operations function | Assignment | Digg.com; blogs on Blackboard |
| Extending lessons learnt from traditional case studies | Case discussion with online video | "Innovation through Design Thinking" by Timothy Brown, CEO of IDEO (Mitworld.mit.edu/video/357) |
| Evaluation of service guarantees | Mini-case discussion | "JetBlue's Customer Bill of Rights" (jetblue.com) |
| Critical analysis of company quality management | Assignment | Planetfeedback.com |
| Increased appreciation of Globalization | Virtual guest speaker | "The World is Flat" by Thomas Friedman (Mitworld.mit.edu/video/266) |

**Table 2. Operations Management Course Structure** (Partial implementation of pedagogical model)

Timely information from the web can be used to illustrate course materials effectively. One such mini-case was developed in this course to evaluate service guarantees immediately following the chaos caused by JetBlue's massive flight cancellations around the 2007 Valentine's Day holiday. The case involved a critical evaluation of JetBlue's "Customer Bill of Rights" and the associated web video from the company's CEO that were posted on the company website. It was serendipitous to have the class scheduled on the same day when the company posted the information, and the travel chaos was being reported in the news headlines. A company's need to respond rapidly to customer needs via the web provides a unique opportunity to make business courses responsive to real world events through such timely mini-cases. They can be used while the events continue to be in our collective memory and the company maintains the information on its websites.

To achieve the outcome of critical analysis of company quality management, students generate feedback on an actual purchase of a good or service that they recently made. They are required to submit an analytical letter of kudos or complaint to the company they bought from via a service called PlantFeedback, showing their ability to apply quality management principles to their purchase or use experience. To guard against privacy issues, students are cautioned about giving detailed personal information (such as phone numbers or credit card information) in the letters, and reminded not to select the option of making their letters public on the website when they do include personal information. Since the site provides a collection of customer letters sorted by industry and letter type, students can analyze and compare their letters to others' feedback, giving them an experience of what a customer service manager would face. A follow-up class discussion reviews how companies did/did not respond to the letters, and what one can understand about firms that do/do not respond to customers. The class also discusses how individual perceptions of the firms change after the action/inaction following the letter. The class discussion is a useful way to highlight the current state of quality in the country based on the collective experiences of the class. The instructor plays a critical role as the moderator of the discussions, highlighting the limitation of possible small sample size as well as balancing out students' positive and negative views. To achieve that, it would be very useful to instructors to actually submit a few of their own letters of complaint/kudos via planetffedback.com and to review letters from other customers on the website before assigning this task to students. This assignment is evaluated based on the analysis of the quality situation presented in the letter.

## 4. DISCUSSION

As with the enabling Web 2.0 tools themselves, this model of the outcome-driven, experience-based learning is emerging, and more data need to be collected before its validity and effectiveness can be evaluated. But based on our initial experience, we identified a few advantages with the pedagogical model, besides the apparent outcome-driven nature. With clearly defined outcomes, instruction channels, and tools, it captures all four stages of experiential learning—concrete experience, observations and reflections, generalization, and testing in new situation (Kolb, 1984)—in a controlled and facilitated environment. And the time, location, and facility aspects of learning become flexible. A class discussion implemented with blog and bookmarking tools shifts much of the learning to the research activities and subsequent interactions and is no longer limited by the weekly three-hour meeting in classroom or the threaded discussion online. In addition, the learning becomes two-way. In such a setting, students are given an open sea of knowledge on the Internet, and instructors can often learn as much from the students' activities and experience. It would be a great way for instructors to renew and accumulate their knowledge and facility of teaching while committed to instructional activities.

Another benefit of this pedagogical model is that it is equally applicable to different instructional formats. Many studies have focused on the issue of resolving the differences among online, classroom, and hybrid education. This is understandable, because the format poses limitations on the delivery. For example, the use of the case discussion method would be quite different in a classroom, where the discussion takes place face-to-face, from online, which is based on asynchronous threaded discussion. But such limitations, however necessary from an instructional perspective, are not shared by the students from their learning perspective (van der Rhee et al., 2006). And the abundant and experience-oriented nature of Web 2.0 tools help to bridge the gap in our proposed model. Our two case studies, for instance, would not be different if the course is in a classroom or online setting.

This model does come with issues and challenges. It may not be suitable for all business and MIS courses, because some are less effective using experience-based learning than with traditional delivery tools. For instance, a programming-oriented MIS course may still be more properly implemented with a mixture of lecture and assignments. However, even in those cases, Web 2.0 can still supplement traditional tools to make the course richer. The case study in Section 3.4 illustrates how such tools can be adopted to enhance the collaborative learning portion of an MBA core course without full implementation of the proposed model.

Another challenge is the amount of time and effort to be devoted to an experience-based course. Such a learning model would require a high level of involvement by students, much more than simply studying the textbook and showing up in class. The expectation for time commitment should be established in the beginning of such a course to make it successful. Also, the experience-based tools can be difficult to implement in classes of large size. For these reasons, we believe that this pedagogical model may be best suited for the MBA curriculum and, in particular, be implemented in certain elective courses initially. It would be interesting to see how it can be adopted in all MBA core courses and in other programs. Additionally, since the model deviates substantially from the traditional teaching environment, it may be difficult for some students to learning in such a setting, especially those who often excel in a well defined, structured teaching environment characterized by lectures, topical papers, and exams. To help such students make the transition and maximize their

learning in this model, a considerable amount of supervision and "hand-holding" may be required on the part of the instructors.

Lastly, it is important to recognize the significant role of instructors in this pedagogical model. Though they are no longer the keepers of knowledge expected to be transferred to students, instructors nevertheless play a key part in an outcome-driven experience-based learning setting as facilitators. Indeed, instructors have to do a lot more than prepare for lectures and exams, in such tasks as selecting the topics and tools, identifying relevant and useful web content, moderating the interactions, and, perhaps most important, situating and interpreting all the knowledge that students acquired in the proper context. In addition, before a Web 2.0 tool is adopted, an instructor should experience it for the assigned task to anticipate learning issues and privacy concerns. This role requires not only subject knowledge and active participation, but also constant renewal. Though demanding, we believe that the efforts on the part of the instructors can be vastly rewarding.

## 5. ENDNOTES

1. In using online video in classrooms, it is recommended that the video be streamed from the provider rather than downloaded and stored for future use. The licensing status of the video material should be researched before any other format of use other than streaming on-demand is adopted. Typically downloading, editing, or duplicating of online video is not permitted, unless it is governed by creative common licensing; and even in those situations, it must be ensured that explicit permission to be used in the public domain or open content licensing terms have been granted to the material by the creators.

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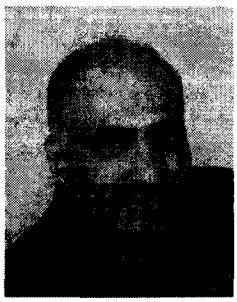

## APPENDIX 1. SAMPLE COURSE OUTLINE

The following is an outline of the syllabus designed for a 15-week, 3-hour-per-week e-commerce course, as adopted by the author for the Spring 2007 semester:

Week 1: *Overview of the course and e-commerce*
Week 2: Business Planning Basics; How to Write an E-Business Plan
Week 3: E-Business Economics, Models, and Strategies
Week 4: E-Commerce Technologies
Week 5: Customer Interface of E-Business
Week 6: Launching an E-Business Successfully
Week 7: E-Business Operations
Week 8: E-Commerce Marketing
Week 9: Internet Marketing Tools
Week 10: E-Business Analysis and Control
Week 11: *Business Plan Presentations and Discussions*
Week 12: Web 2.0 Impact on Business
Week 13: Media Transformation
Week 14: E-Commerce Security Issues
Week 15: Macro Environment for E-Commerce: Legal, Ethical, and Social Impacts

## APPENDIX 2. SAMPLE RUBRIC FOR E-COMMERCE BLOGS

For the e-commerce course in Spring 2007, a student was assigned five topics to blog on. Each blog on a topic is evaluated on a 10-point scale based on the following rubric.

A. Frequency: 1-2 points
- 1—1 or 2 entries
- 2—More than 2 entries

B. Content: 1-5 points
- 1—Opinions only
- 5—Good research and analysis

C. Entry format: 0-1 point
- 1—Demonstrating good communication skills and "netiquette"
- 0—No

D. Comments to others: 0-2 points
- 0—Not commenting others' entries
- 2—More than 2 comments


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ISSN 1055-3096