

Using Web 2.0 to Support the Active Learning Experience

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ABSTRACT

Increased attention to student engagement and active learning strategies have become particularly relevant in today's classroom environments. These approaches are also considered to be meaningful when teaching "net generation" students who have different styles and expectations. This study attempts to address these challenges through the development of an interdisciplinary, active learning experience that increases information technology literacy of business students through the use of Web 2.0 tools. The research questions under consideration are: Can information technology literacy skills be effectively developed in an interdisciplinary setting? How does the development of an experiential learning activity enhance student engagement and learning outcomes? A discussion of the active learning literature and the appropriateness of such strategies with net generation learners is provided. The study also details the implementation of this experience within the curriculum, and assesses the benefits and challenges related to enhanced student learning and engagement as well as literacy outcomes. Increased student engagement was noted in both instructor and student evaluations of the assignment. Furthermore, assignment design features such as opportunities for exploration, analysis and feedback contributed to the level of connectivity.

Keywords: Active Learning, Social Networks, Web 2.0, Sport Management

1. INTRODUCTION

Increased attention to student engagement and active learning strategies have become particularly relevant in today's classroom environments. Researchers (Bonwell and Eison, 1991; Chernay, 2008; Graffam, 2007) across a range of disciplines have agreed that to be actively involved requires students to use higher order thinking including analysis, synthesis and evaluation. Incorporating strategies that support this kind of learning are also considered more relevant and meaningful when teaching "net generation" students who were born between 1982-1991 (Oberlinger and Oberlinger, 2005). Net generation learners have different styles and expectations that require faculty to reconsider pedagogical approaches (Prensky, 2001). Traditional classroom structure and teaching strategies are challenged by the learning needs of these students who process information differently. Faculty must consider the impact of net generation characteristics such as preferences for digital literacy, experiential learning, interactivity and immediacy on all areas of course design and delivery (Skiba and Barton, 2006).

The purpose of this paper is to address these challenges through the development and implementation of an interdisciplinary, active learning experience that increases

information technology literacy of business students through the use of Web 2.0 tools. The information systems (IS) curriculum is widely acknowledged to have an interdisciplinary background; it is also a key component in other business disciplines (Benbasat and Weber, 1996; McBride and Hackney, 2003). As such, and in response to the current contraction and elimination of separate IS programs, faculty seek to provide the application of information technology concepts in other classes. Such integration actually strengthens both the application of those concepts to problem solving across business disciplines and it improves the network connections to other faculty and the business community (McBride and Hackney, 2003).

The research questions under consideration are:

- Can information technology literacy skills be effectively developed in an interdisciplinary setting?
- How does the development of an experiential learning activity enhance student engagement and learning outcomes?

Using Web 2.0 tools builds on the previous experiences that net generation learners have with social networking. In addition, students are provided with opportunities to analyze the use of these tools in a classroom context, and to assess the potential of broader application in business environments and in their future lives. This study includes a discussion of

the active learning literature and the appropriateness of such strategies with net generation learners. It also details the implementation of this experience within the curriculum, and assesses the benefits and challenges related to enhanced student learning and engagement as well as literacy outcomes.

2. BACKGROUND

2.1 Active Learning

Engaging students in learning can be both challenging and rewarding for educators. Chapman (2003) defined student engagement in association with classroom learning and stated that three inter-related criteria must be considered as part of the process: cognitive investment, active participation and emotional engagement. The focus on active learning is supported by numerous researchers (Bonwell and Eison, 1991; Chernay, 2008; Graffam, 2007) and is defined by Bonwell and Eison (1991) as instructional activities involving “students in doing things and thinking about what they are doing” (p. 2). Bonwell and Eison (1991) also supported the notion that the adoption of active learning pedagogies contributes to increased student learning. Common characteristics associated with active learning include the use of higher level thinking and engagement of students in activities that encourage exploration and subsequent evaluation of their involvement. The emphasis on skill development and the use of prompt feedback as exploration occurs replaces the notion that learning is related to the transmission of information. Graffam (2007) considered the use of active learning in medical education and suggested that increased student engagement through active and collaborative pedagogies relies upon the development of “intentional engagements” that connect students to the learning process. Faculty must attempt to design experiences that bring together previous experiences and combine those with the new areas being explored. Chernay (2008) and Graffam (2007) also agreed that furthering connections with real life learning can be used to enhance understanding and encourage increased levels of critical reflection.

2.1.1 Active learning strategies: For faculty who are attempting to redesign course curricula, active learning strategies can be adopted on a number of levels (Schrand, 2008). Specific assignments or in-class exercises can be developed; for example, use of case studies, simulations, role playing, debates, and cooperative learning. In today’s classroom a variety of technologies can also be used to enhance active learning opportunities. Schrand (2008) repackaged a traditionally developed assignment with the addition of simple, interactive multimedia components. The student response to this redesigned assignment highlighted the positive aspects of active learning by generating increased competition, interaction, discussion and reflection.

Oberlinger and Oberlinger (2005) and Prensky (2001) suggested that active learning approaches have particular relevance and meaning to net generation learners. These students embrace interactive environments, have different ways of thinking and communicating, and seek active involvement in their learning. In response to these considerations, Skiba and Barton (2006) proposed that

faculty must adapt and modify their teaching strategies to recognize the preferred learning styles of this generation of students. Specifically, faculty must address the impact of student preferences relating to digital literacy, experiential and engaged learning, interactivity and collaboration, and immediacy and connectivity in their interactions. For example, by embedding Web-based interactions, tools, and applications within a course, net generation preferences are supported and relevant engagements and connections may occur.

Students from the net generation have grown up in a digital world and as learners they expect to use these tools to their advantage. Prensky (2001) described these students as “digital natives” and suggested that they are the first generation to grow up immersed in technology. Net generation students are “native speakers” in this environment and “computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives” (Prensky, 2001, p. 1). Brown (2000) discussed the learning styles of net generation learners and the role of technology. For example, as net generation students seek immediate information, their first step in locating that information is to connect to the Internet. These students are naturally inclined to “focus on understanding, constructing knowledge using discovery methods and active engagement” (Brown, 2000, p. 4) and are looking to faculty to provide them with guidance and a tailored learning experience. Selwyn (2008) also examined the use of the Internet for academic purposes among undergraduate students. His research suggested that positive links existed between the use of the Internet in leisure and in learning situations, but that attention should be paid to a potential “over-reliance” on the Internet. He proposed that although students have high levels of use in areas such as social networking, chats and messaging, not all are ready to adopt Internet tools in broader situations.

2.1.2 Engaging the net generation: The impact of technology in the lives of net generation students brings both opportunities and challenges to faculty seeking to develop engaged learners (Skiba and Barton, 2006). Borsheim, Merritt, and Reed (2008) suggested that meaningful technological applications and tools have broad potential regardless of the discipline and can be easily utilized to support experiential and active learning goals. Careful selection and integration of technology provides relevance to students and allows pedagogic goals to be aligned with student preferences. Skiba and Barton (2006) identified teaching strategies that supported digital literacy goals in nursing education and suggested that hand-held devices such as PDAs could be incorporated into teaching to highlight practical use in patient care situations and to meet the needs of net generation students. Barnes, Marrateo, and Pixy Ferris (2007), Bisoux (2008), Chernay (2008), and Graffam (2007) also considered the impact of building upon the prior experiences of students as a part of the active learning process. Enhanced learning can be achieved by encouraging students to think differently about how they use existing skills, such as Internet tools.

Students using Internet tools for personal, educational and work purposes are often multitasking within different roles (Barnes, Marrateo, and Pixy Ferris, 2007). Web 2.0

tools such as social networking sites, blogs, wikis, and multimedia applications have been widely adopted and are considered to be an essential part of social interactions, educational activities, as well as future planning. Social networking tools such as Facebook (2009) and Ning (2009) are widely used by students in their personal lives. These tools may also be used to support active learning pedagogies that have high levels of relevance to net generation learners. Bisoux (2008) suggested that students should be encouraged to learn that their prior experiences with social networking can contribute in a classroom setting but also in their future professional lives. These powerful technologies have the potential to impact learning outcomes and provide relevant skills and increased marketability in the workplace.

2.2 Web 2.0 in the Classroom and Beyond

2.2.1 Applications in the classroom: Although many studies and articles have focused on K-12 initiatives (as reported in sources such as T.H.E Journal, School Library Journal, Technology & Learning), there are fewer reported at the university level. There is some speculation that the lag in implementation may be due to faculty apprehension. In a survey of college faculty, Ajjan and Hartshorne (2008) reported that although faculty thought that teaching and learning Web 2.0 was beneficial, very few used the tools in the classroom. Several examples, however, have surfaced. The use of wikis appears to be gaining favor in many courses. For example, a Chemistry Language course at Brown University has used wikis to foster student interaction by sharing questions and recording uses of the terminology (Yan, 2008). At Emerson College, Yan (2008) cites an example of blogs used for publishing and discussing student work in a "Digital Culture" learning community. At the College of William and Mary, students in a government course have used the social bookmarking service Delicious (2009) to create a repository of research sites (Bryant, 2006). Students and faculty appear to have capitalized on the easy collaborative nature of these technologies, which increases the level of internal communication. Franklin and van Harmelen (2007) reported on a number of initiatives in the U.K. using social networks, blogs, wikis, and virtual world technologies, not only in individual courses, but as the infrastructure to implement the way universities provide their public interface.

2.2.2 Applications in business: The importance of information systems literacy in the business world had been widely documented, and managers across a range of industries are assessing the value and capabilities of Web 2.0 applications (Fisher, 2008, Havenstein, 2008; Klassen, 2008; Thackery, Neiger, Hanson and McKenzie, 2008). Corporations have moved beyond traditional Web tools and have begun to embrace Web 2.0 applications. According to Havenstein (2008), the value of Web 2.0 to many companies is the potential to improve customer relations. Klassen (2008) also considered the use of Web 2.0 and social networks in predicting future consumer purchase patterns. In the sport industry, IT managers are also considering the impact of Web 2.0 on their operations and customer relationship building activities (Fisher, 2008).

Thackery et al. (2008) and Fisher (2008) reported that the ability of Web 2.0 to directly engage customers was an important consideration in many industry settings. The strategic issues associated with Web 2.0 applications also present consistent challenges -- particularly identification of priority audience preferences, and the selection and evaluation of tools. In addition, Havenstein (2008) suggested that increased attention on the development of analytic tools was needed to measure the impact of Web 2.0 strategies and provide information related to returns on investments.

2.2.3 Applications in the sport industry: In the sport industry, organizations are assessing the power of these tools in directly accessing their consumers. The Sport Business Journal (November 17, 2008) contained a special section that focused on the use of Web 2.0 and the ability of the industry to understand the potential of social media. Sport properties such as teams, leagues, advertisers, and television networks already have a presence on networks such as Facebook (2009) and encourage consumers to join as fans. The major sports leagues in the United States have all developed a Facebook (2009) presence and view it as a way to strengthen relationships with fans, particularly with younger demographic groups (Fisher, 2008). Fleischer (2008) suggested that the value of social networks should not be overlooked, especially as young people today have embraced these tools as a part of their lives. Sports brands and corporate sponsors are also establishing themselves in social networking sites. For example, Adidas's Facebook presence (2009) has attracted 1,038,911 fans, and serves unique video content to its members (Donahue, 2008).

The challenge for the sport industry is to determine the true value and potential of Web 2.0 in the future of their organizations. Currently, executives in the sport industry seemed to have mixed views on the future on social networks and it may require the next generation to take the lead in harnessing the technical and marketing capabilities of Web 2.0. For today's business students, familiarity with Web 2.0 tools and applications are relevant skills that may provide a foundation in understanding a dynamic communication environment but may also contribute to future career successes.

3. PROJECT IMPLEMENTATION

The case study approach was selected to allow in-depth analysis of the project development and implementation (Nelson, 2008; Yin, 2003) and was designed to provide greater understanding of the following research questions:

- Can information technology literacy skills be effectively developed in an interdisciplinary setting?
- How does the development of an experiential learning activity enhance student engagement and learning outcomes?

To fully address these questions, we present the development and implementation of an experiential learning activity; specifically, use of Web 2.0 technologies to create a real "viral" marketing promotion as part of a sport management course. This project was developed in order to further explore student literacy with Web 2.0 tools and to do so in a manner that would increase the engagement levels of

students. The interdisciplinary component was developed in partnership with Management Information Systems (MIS) faculty and with input from business partners who were seeking to increase their own information technology literacy in this area. We share the details of the assignment, some examples of student work, and describe how the project was evaluated both in terms of grading criteria and student assessment. Finally, the limitations, benefits and challenges of this learning activity will be discussed in relation to student outcomes, to existing literature, and future teaching strategies.

3.1 Setting

The case was developed and implemented in a public university in the Northeastern United States at an institution with an enrollment of approximately 10,000 students, including 800 students in the School of Business. Designers of the assignment were two business faculty, one from MIS and the other from Sport Management. Regular development meetings were held to gather information, consider design issues and also to obtain input from business partners in the community. Professional sport team personnel provided input on the relevance and use of Web 2.0 skills in their business environment. These ideas were incorporated into the assignment design in order to increase the relevancy of the activities. The experiential learning assignment was designed for implementation in the fall semester of 2008 and was included as a required component an introductory sport management course. Approximately 105 students in three course sections participated in the assignment in self-selected teams of five people.

3.2 Experiential Learning Assignment Development

Development of the assignment was based on previous literature addressing the development of engaged and active learners. Each step was constructed with the goal of maximizing student involvement, by providing opportunities for exploration, critical reflection and feedback (Bonwell and Eison, 1991). The context of the assignment was presented using a sport marketing platform where each team used Web 2.0 tools and strategies to promote attendance at a season opening basketball game. The assignment consisted of four distinct stages: a) overview and introduction to Web 2.0; b) resource identification and action plan development; c) implementation of action plan; and d) evaluation and review (See Figure 1).

Guidelines were developed for each stage of the assignment outlining the requirements, and providing examples and resources to assist in developing student understanding of the potential of uses of Web 2.0 strategies in this situation. Students were required to maintain and submit documentation including both individual and team contributions. A number of forms were developed to assist students in clearly documenting their activities and an outline of the final evaluation and review paper was provided. The assignment timeframe ran over a four week period and included opportunities for teams to work together during class meeting times.

Due dates for assignments were developed in week one, in week three and following completion of the project. The assignment was graded both individually (30%) and on the

team contribution (70%) with the specific elements tied to each grade identified in the assignment instruction document. Opportunities for frequent feedback were built into the assignment to support active learning principles and recognize the preferences of net generation learners (Skiba and Barton, 2006).

3.3 Managing the Project

3.3.1 Overview: The first stage in implementing this assignment was to provide the students with a detailed overview of the assignment including an introduction to Web 2.0. Two short YouTube videos (Web 2.0...The Machine is Us/ing Us, 2009; What is Web 2.0, 2009) were viewed in class and provided an initial introduction to Web 2.0, the concept of user generated content, and some of the tools available. Students then used a brainstorming session to create a list of Web 2.0 tools ranging from social networking sites, to mash-ups, wikis, text-based posting such as Twitter (2009). They were encouraged to discuss their own activity levels and current use of these tools in their personal lives

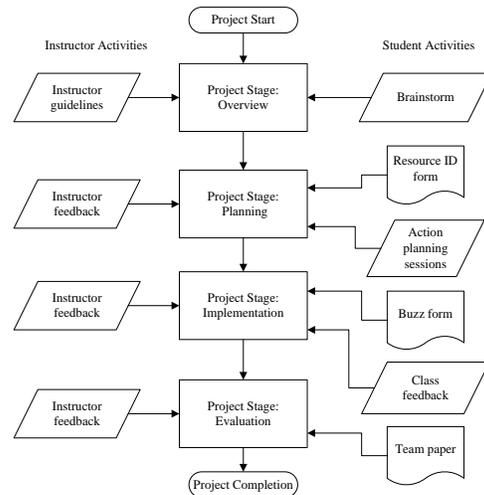


Figure 1. Diagram Outlining the Assignment Structure

The specific context of the assignment was then introduced so that students could begin to explore the use of Web 2.0 tools and strategies in a business environment. Students were tasked with conducting a marketing promotion that would lead to increased attendance, and thus attendance receipts, at a basketball game. Each of the tools or strategies identified during brainstorming was revisited in order to generate further ideas on the relevance to the assignment. For example, discussions on the use of Facebook (2009) produced ideas relating to the creation of groups, invitation, specific page development and the use of the marketplace feature. This discussion also raised broader issues relating to the promotion such as target markets, evaluation of promotional strategies, and measurement of success at the completion of the project.

A number of resources were provided to assist students in furthering their understanding of Web 2.0 and its potential application. Students were directed to educational resources, as well as proprietary and commercial websites. The demonstration components and forum features of sites such

Website	Value - Why is this site useful?	Strategies – Explain how you will use this resource.
Facebook (2009)	Many students use this social network regularly to communicate with one another. Can place advertisements by location.	Create an event page, including links to coupon. List the game as an event. Invite all friends (about 500) and ask them to invite their friends. Make advertisement in marketplace.
YouTube (2009)	Create video to highlight the game. Make it funny to attract more attention. Can add video link to all other communications and share with rest of class. Easy to tag with links.	Posted video, then added link to all other communications including social networks and message boards. Measure views to see how successful this is.
Message boards – MBR (MBR.ORG LLC, 2009) and D3hoops (2009)	Both boards are focused on basketball in our area. Specific forums also focus on our conference. Good way to create interest and reach people who are already interested basketball fans.	Create an event with the details and a description of the exciting points such as the rivalry and new recruits. Include coupon link and tell people to print it out and bring to the game. Monitor the discussion to see how many people respond and keep the conversation going.

Figure 2. Sample Entries Submitted in Resource Identification Form

as Twitter (2009), Sports Marketing 2.0 (2009), a social networking site used by sport industry professionals to share resources and exchange ideas, and BzzAgent (2009), a commercial enterprise focused on word of mouth marketing, provided students with valuable opportunities to broaden their understanding of Web 2.0.

3.3.2 Planning: The second stage of the assignment focused on the identification of specific resources that could be used individually or by a team to promote increased attendance at the basketball game. Students were encouraged to think about target audiences, use of existing networks, and expansion into new and broader networks. A Resource Identification Form was provided and completed by each individual student (Figure 2). Each potential resource (website and/or specific tool) was identified and briefly discussed in terms of value and the potential use for the assignment.

The evaluation of the planning stage of the assignment was graded individually; completion of the Resource Identification form provided useful information for initially assessing the engagement levels of the students and their understanding of Web 2.0. This information was used to address a number of questions. For example; how complete were the forms submitted by each student? How far had students gone in identifying resources beyond those that they were already very familiar with? Did the tools and strategies identified demonstrate increased understanding of Web 2.0? The graded forms with comments and suggestions were returned to the students immediately so that the information could be used to develop an action plan.

The initial action planning session occurred during assigned class time so that guidance could be provided by the faculty. Each team was encouraged to identify and assign specific strategies to team members, to schedule team meetings (virtual or in-person) and to ensure that all activities were documented on the form provided.

3.3.3 Implementation: In the third stage, students implemented their action plan. This phase lasted approximately 10 days. Student progress was discussed at each class meeting during that time. Students developed a

wide variety of activities including the creation of websites, blogs, discussion threads on relevant forums, YouTube videos, Facebook (2009) pages, groups, invitations, and advertisements. They also used services such as LinkedIn (2009), Ning (2009), and BzzAgent (2009) to communicate with potential networks and audiences. A raffle promotion was developed by the class to provide a measurement tool and links to coupons were embedded in communications. The intention was to use the number of coupons turned in at the game as a measure of success. Students were asked to keep samples of their work using a “Buzz Form” (see Figure 3.) and to track/measure success wherever appropriate. Midway through this stage, a class session was used to provide each team with the opportunity to present their activities to the rest of the class. Students presented YouTube videos and displayed websites that had been created. For example, one team created a website including information on the teams, the event, a poll asking visitors who would win and a countdown to the event date (Figure 4). This site also included tracking features that allowed the students to monitor activity levels such as unique visitors, total page views, and bookmarking.

All the teams used the features of Facebook (2009) by creating groups and inviting their friends and contacts. Tracking responses to these invitations provided feedback that was easy to measure. An example of one of the Facebook (2009) pages can be found in Figure 5. Teams also demonstrated features such as polls, discussion threads, and presented the number of posts or views as potential measures of activity. Links to websites, forums, and videos were shared with other teams to allow further distribution. These presentations created high levels of engagement through discussion, critical reflection, and sparked competition between the teams. Throughout this stage, students monitored responses to their activities and each team implemented final push strategies. The anticipation of attending the basketball game to observe the potential success of their efforts generated additional excitement and approximately 90% of the students attended the game.

3.3.4 Evaluation: The final stage of the assignment focused on evaluation. An informal classroom discussion

Date	Website	Activity – Describe what you did on this site Be detailed!	Evaluation – What kind of response are you getting (monitor, update, etc)
11/12/08	www.freeweb.com/teamajkd	Created free website. Included team photo and information, game details with a countdown clock. Also added pages with more information such as captains and roster. Added a poll to get people to vote on who will win. Included the coupon link and asked people to print it and bring to game. Also added link to this page in our other activities and shared with the rest of the class.	364 different visitors to the site, 88 people did the poll, 104 added bookmarks to the event. Over 4100 views from links placed in mbr.org and 200 views on Facebook.
11/18/08	www.facebook.com	Checked the success of the event we created. It seems to be doing pretty well. Many people have confirmed and seem to be excited about attending.	99 confirmed guests, 101 maybes = potentially 200 people showing up. Comments posted show excitement and interest in the rivalry. Probably our most successful tool.
11/19/08	www.mbr.org	Created a discussion topic about the game. Included the coupon link and played up the rivalry and new recruits. Monitor the topic everyday and added more comments.	The discussion topic had 41 replies and 874 views. Not everyone made positive comments and didn't like the fact that we were promoting a game. Changed posts to just try to talk about players and rivalry.

Figure 3. Buzz Form with Examples of Student Entries

was held to begin this process and the success of a variety of strategies was analyzed, along with the overall impression gained from attending the game. Attendance numbers soared from an average of 300 to approximately 900 fans. The final paper that students submitted summarized all team activities, and discussed successes and failures of the project. Students also provided relevant data and statistics and concluded with an overall evaluation of the assignment including personal reflections. Finally, they were required to provide documentation outlining their individual contributions.

implementation stage, and regularly contributed to their teams. The group grade was assigned based on the final paper that required the teams to include a self-evaluation of their activities including measurement strategies used, and reflections on what they learned from the experience. These two grades were combined to calculate total grades for each student. Analysis of the grade distribution indicated that 36% received a grade of B- or better, 31% received a grade in the C range, 15% received a D and 8% received non-passing grades.

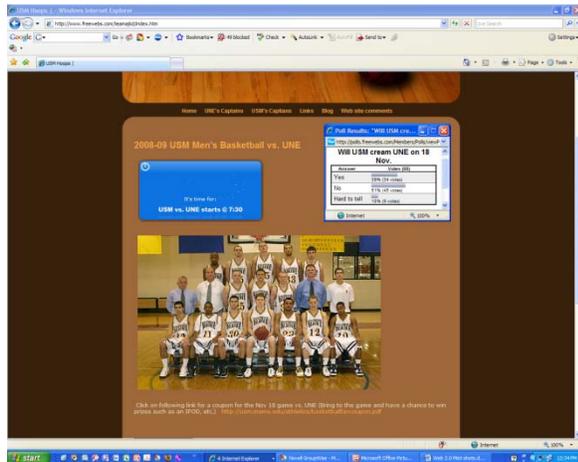


Figure 4. Example of a Student Website



Figure 5. Sample Facebook Page

Grading of the assignment was broken down to include an individual and a team component. The individual grade was assigned based on activity levels as demonstrated in the Resource Identification and Buzz Forms. Grades were awarded based on evidence that students had researched a variety of Web 2.0 tools, analyzed the value of these tools in relation to the specifics of the assignment, continued to monitor and modify their activities through the

4. PROJECT ASSESSMENT

4.1 Instructor Evaluation

The preferences of net generation learners presented throughout out the literature supported the focus and design of this assignment. The design, supporting documentation, and requirements all impacted the potential success of the assignment in achieving the stated goals of increased active

learning and information technology literacy. The introduction stage was effective in creating interest and encouraging students to become engaged through initial exploration. The use of the digital medium and discussion of tools, such as Facebook (2009), that are a part of the student's daily lives provided an assignment platform that was immediately intriguing.

Assessment of the implementation stage indicated that the students' exploration had gone beyond the areas with which they were most familiar. Every team (100%) used social networking sites such as Facebook (2009), LinkedIn (2009), and MySpace (2009) as part of the assignment. Other tools were used on a variety of levels; discussion forums (68%), blogs and personal websites (15%), YouTube (2009) (22%), email and text messaging (57%) and others such as BzzAgent (2009) and Craigslist (2009) (21%). This assessment also highlighted the fact that a number of students were unclear about the distinction between some of the traditional communication strategies used on the Internet. For example, some students suggested placing paid advertisements on local media sites. In this instance, direct feedback was provided and further discussion with the entire group was used to continue the process of broadening the understanding of Web 2.0 tools. Students were also encouraged to re-examine the tools they had selected to ensure that they were not relying on traditional advertising strategies.

Class time devoted to the assignment was valuable in sharing ideas, reflecting and analyzing the use of different tools, and in maintaining student engagement. Active discussions and the development of healthy competition between the teams appeared to indicate that students were interested and engaged. The on-going focus during class time also helped to ensure that students were engaged on a more continuous basis with regular contributions made to the completion of all phases of the assignment. In addition, 90% of the students attended the basketball game and expressed excitement and satisfaction from the feedback they received. By observing the crowd attendance levels, students were clearly able to see that their efforts had been successful.

The final paper and supporting documentation provided useful evidence of the involvement levels of each team member. Team dynamics and student preferences in the use of various tools were evident. In addition, the evaluation component allowed students to attempt to quantify their success by providing relevant data and also to consider the value of the tools they had selected. For example, students who were active in posting to discussion forums were able to provide data on the number of postings and views in each thread. One team created a discussion thread on a basketball related website and reported 200 views and 45 replies. Students with more sophisticated technology skills also used the data collection service offered by Freewebs (2008) to collect data on page views (1100), unique visitors (364), poll activity levels (88 votes), and length of time spent on the page (3 minute average). Analysis of the data and reflections on the success or failure of these strategies provided additional insight into the students' understanding of the material and could also be used to assess engagement levels. Students consistently highlighted the importance of recognizing specific target audience preferences in use of

various tools and in the language and writing style used in communications.

4.2 Student Evaluation

During the introduction of the assignment, an informal poll revealed that the majority of the students were not familiar with the term Web 2.0. In addition, their digital literacy seemed to be narrowly focused on specific tools that they used to communicate with their friends. For example; few students had heard of or were subscribers to Twitter (2009) and after reviewing the basic use of this tool, many students questioned its relevance to their lives. However; the emphasis on using familiar tools such as Facebook (2009) in a new environment appeared to spark the interest of students and created excitement and energy in the classroom. It was also encouraging to note that some teams did go beyond the more familiar tools and experimented in other areas. For example, a frog was created in the "frogpond" section of BzzAgent (2009). The frogpond allows individuals and companies to create a frog to highlight their product or idea and then share it with others. Another student created a personal networking site using Ning (2009).

During the first three stages, class discussions provided anecdotal evidence and commentary from students on their activity levels and engagement with the assignment. This continued discussion indicated that critical analysis, reflection, and evaluation were an on-going part of the process. Student engagement levels could also be assessed through the interest and discussion surrounding potential attendance levels at the game. This was an on-going topic of conversation throughout the assignment and students were excited about this outcome. From a student perspective, this highly visible form of feedback was an important indicator of their success. Each team regularly reported data such as the number of hits on websites, video views, posts to discussion threads, and responses to invitations to join groups. This type of feedback provided opportunities for analysis, and the immediacy and constant updates to the availability of current information reinforced the positive aspects of their work and also directed further efforts.

The main source of formal student feedback was provided through the final paper which required an evaluation of the strategies used and reflection on the assignment as a whole. The feedback received highlighted many positive aspects of the assignment and also indicated that through the practical application and subsequent analysis of their work, the overall literacy and understanding of Web 2.0 increased. Evidence was presented to demonstrate how the teams had selected, developed, used and evaluated specific tools. The following selected quotes from the final papers are provided to demonstrate student analysis and reflection and also to highlight the development of increased understanding in the potential uses of Web 2.0 tools:

- "We created a website and posted links on Facebook, D3hoops, MBR.org. It was a success with 364 visitors and 1100 page views. 108 people bookmarked the site and 88 people participated in our poll."
- "We made a Facebook event. We added all the relevant information into the event. We also sparked interest by posting on the wall to remind people, and invited over 500 people to the game." (see Figure 5)

- “Our team used mass text messaging which was very successful. We received forwards of the original email 3 times during the next few days”.

Students also evaluated the content and relevancy of specific elements of their communications and recognized that the tools that they had previously used for personal use had broader application. Increased understanding was also evident in terms of appropriateness of writing style and use of specific language. Some sample comments are as follows:

- “D3hoops.com was a good resource to get the word out. We noticed that a lot of the posts were more like one time ads rather than trying to spark interest which was our goal. We tried to make conversation.”
- “I believe it (Web 2.0) is a very effective way of raising awareness in our technologically advanced society.”
- “The use of Web 2.0 in this assignment showed us that the Internet and world of social networking can connect you in a convenient, easy and effective way.”

The overall evaluation from both faculty and students sources provided positive support for this assignment. The challenges that arose were mainly related to the timeframe and the initial experience levels of the students. The involvement levels of the student and the quality of the work that was submitted indicated that progress was made in reaching the project goals. In the following section, further discussion will be presented on these findings, the relationship to previous literature, limitations and future work.

5. DISCUSSION AND LIMITATIONS

The goals of this assignment were to increase the engagement of students as active learners and to improve literacy levels in the use of Web 2.0. Assessment of the individual and team components of the assignment indicated that the both goals were met. Students were able to demonstrate through appropriate discussion and written analysis that they were increasingly fluent in selecting, using and evaluating Web 2.0 tools. The engagement and involvement levels of students were assessed through self reported individual documentation as well as through team contributions during class presentations and discussion. Overall, participation levels during in-class activities were high, with active contributions from all teams.

Bonwell and Eison (1991) and Graffam (2007) highlighted the potential benefits associated with active learning particularly in terms of increased learning. In recognizing these benefits, this assignment was developed on a platform that included active learning pedagogies and sought to engage students at a high level. Graffam (2007) suggested that by creating “intentional engagements” students are more likely to immerse themselves in on-going exploration and evaluation. In this instance, the intentional selection of a familiar environment provided a strong connection to the real life experiences of the students. Students were interested by the links between the social networking tools that they used regularly and the potential broader applications. The relevancy of this aspect encouraged high levels of active learning.

An additional component in the successful implementation of active learning strategies requires students

to analyze, critically reflect and use relevant feedback (Chernay, 2008; Graffam, 2007). In this assignment, all of the project stages encompassed these activities and supported increased levels of engagement. The use of high levels of feedback also supports the preferred styles of net generation students (Skiba and Barton, 2006). The digital platform and nature of the assignment brought additional relevance and provided immediate feedback in many cases. Students were able to check responses to their activities frequently and could quickly determine which strategies were more effective.

According to Barnes, Marateo and Pixy Ferris (2007), the ability to relate to prior student experiences leads to positive interactions in active learning environments. As “digital natives” (Prensky, 2001), the students already possessed technology skills that could be used as a platform. The assignment was then used to challenge the students to build on their past experiences, explore new areas and develop new skills and understanding. Skiba and Barton (2006) also highlighted the digital preferences of net generation learners as well as their positive responses to experiential and interactive learning. Both factors were significant considerations in development and implementation of the assignment which led to a meaningful, interdisciplinary experience that accommodated preferences, built upon prior experiences, and introduced and developed new skills in an interactive manner. Selwyn (2008) noted that many undergraduates have high levels of familiarity with certain tools but need guidance to explore further particularly in educational settings. By building on familiar tools, students became more creative and innovative in their exploration and adoption of available tools.

The goals of this project focused primarily on student engagement and Web 2.0 literacy; however, broader learning occurred as students considered the application of Web 2.0 tools in a business context. Even though many of the students were in the first or second year of their business program and had relatively low exposure to the business core curriculum, they were able to identify some of the issues being considered by business and IT professionals (Thackery et al., 2008). For example, students discussed some of same strategic issues in identifying priority audiences, and selecting and evaluating tools.

A number of limitations impacted the implementation of this project. The assignment was adopted in an introductory level course with primarily first and second year students that had exposure to the business core curriculum. In addition, approximately 30% of the students were in their first semester as college students. The overall inexperience of the students may have impacted the quality of the work as well as their organizational skills. Some teams needed additional guidance especially in the early exploration stages of the assignment.

The raffle coupon that was designed to track increased attendance and the impact of Web 2.0 marketing was not effective -- only 45 coupons were collected at the event. Tracking mechanisms on student websites indicated that many people viewed the coupon but chose not to print it out and bring it to the game. Information was also not collected to show which Web 2.0 tools resulted in an eventual ticket purchase for the game. Therefore, students only had

anecdotal evidence (increased attendance count) as a measure of Web 2.0 promotion effectiveness. A survey could have been developed to determine if attendees were influenced by the Web 2.0 strategies used by students, and if so, which ones.

The timeframe used to introduce, implement and evaluate this assignment was also relatively short. The introduction stage was particularly important and could have benefitted from additional class time dedicated to a more detailed overview of Web 2.0. Further examples and more time for detailed classroom analysis and discussion of a range of tools may have led to less reliance on using the most familiar tools in the implementation stage.

The project could also have been strengthened by the addition of assessments designed to measure the learning outcomes. Student surveys or focus groups prior to the introduction of the assignment may have provided baseline data on prior literacy levels with Web 2.0 and could have been repeated on completion of the assignment to assess the learning that occurred. Surveys could also have been used to gather more robust data on the activity levels and engagement of individual students and teams.

6. CONCLUSIONS AND FUTURE RESEARCH

The success of this assignment in achieving the stated goals is promising as a future teaching strategy. Logistical changes related to the timeframe are easy to address and should provide a number of benefits. Other future opportunities exist in terms of modifying the assignment for use with different levels of students. A more sophisticated and educated student population that has previous experience with MIS and marketing courses may approach this assignment differently. It is anticipated that this type of group would bring a more focused approach in identifying audiences and developing relevant strategies to reach that audience. They should also bring higher level technology awareness which may lead to innovative ideas. Other options for the future are to limit the use of particular Web 2.0 tools so that students are required to think more broadly about the tools that are available to them. Teams could be required to analyze one or more tools in detail. In addition, the "product" selection element of the assignment could be different for every team or they could work with external groups such as local business partners to promote a variety of products and services.

The development and implementation of this assignment as an effort towards increased student engagement and Web 2.0 literacy was a fulfilling experience for both faculty and students. Key design decisions contributed to the success and brought students together in active exploration both inside and outside the classroom. The digital context and preferences of net generation learners were key contributors to the success of the assignment as they provided high levels of relevancy to students. Increasing opportunities for students to become active learners has the potential to create more dynamic classroom environments that bring excitement and energy to the process.

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