

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

The Partnership for Knowledge Entrepreneurship
The Catalysts for Intellectual Capital 2020
2009 Leadership Institute

ELLIOT NASSER
Financial Economics
Binghamton University, 2011

Abstract

Web 2.0 technologies such as Google, Wikipedia, Facebook, and Blogs are revolutionizing the way people communicate. There are currently over one hundred “social networking sites” available for use on the internet with the goal of connecting users and making information more accessible. The most innovative academic institutions and businesses are taking advantage of these new free tools and using them within their own organizations. As a result of the evolution in the way people communicate; social media marketing is now a viable means of increasing productivity and efficiency within a business.

Keywords: Web 2.0, technology, communication

Binghamton Keywords: Broome Community College; BCC iTunesU; BingPop; Know Theatre; GrafiQa Creative Services

I. INTRODUCTION

The constantly increasing number of tools available on the internet guarantees that every organization will be able to profit by implementing Web 2.0 technology. As a result of the economic downturn and the decline of the global economy, there is a smaller margin for error and fewer dollars available to fund focused and complete marketing plans. One of the most fatal mistakes for small businesses is the perception that marketing can be an afterthought rather than a fundamental part of creating a sustainable business. The Southern Tier has the opportunity to be ahead of the curve as a community by implementing Web 2.0 technologies at Binghamton University, in local businesses, and through the local government. Whether it is at school or in the workplace, full utilization of Web 2.0 technologies adds immediate value to an organization of any size.

The Web 2.0 Revolution

The internet has changed the way in which people learn, work, and socialize. According to a report conducted by the Nielsen Company, American adults spent over twenty-nine hours on average on the internet in May 2008 (Nielsen Company, 1). The focus of internet usage has shifted from Web 1.0 technologies to Web 2.0 technologies. User collaboration is the most fundamental change in how people communicate and work. In previous years, it would have taken hours to access all the information necessary to gain a full understand of a topic using

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

web resources alone. Google, Wikipedia, and blogs all serve as aggregators of information scattered across the web while citing the sources and continually linking to other sites.

There is a continuing trend of increased adoption of Web 2.0 technologies among adults worldwide. The Seven core competencies of Web 2.0 technologies are:

1. Harnessing collective intelligence
2. Increased focus on data as a commodity
3. Innovation in assembly
4. Rich user experience
5. Software above the level of a single device
6. Perpetual beta
7. Leveraging the long tail (Wendy Warr, 591)

Web 2.0 technology allows for a wider range of topics to be addressed in a virtually global market. The internet as a learning tool and as a business market has finally been democratized. Information is now accessible and now there is a shift towards offering services free of charge and capitalizing on advertising revenue. Collaboration is the driving force between Web 2.0 technologies. Everything is open source, easily changeable, and completely user oriented. Users are given the opportunity to interact with information rather than simply view information. Academic institutions have found innovative ways to implement technology into their core curriculums. Students are increasingly comfortable with technology and teachers are trying to keep up with the competencies of their students.

Academic Applications of Web 2.0 Technology

i. Digital Space: Student Authoring Online

Teachers and students interact on a daily basis but essentially live in two very different worlds. According to Hansford and Adlington, in order to teach students in the new digital age, linking and building on students' prior knowledge and experiences is essential to success within the classroom. The role of the teacher is to identify the applications of Web 2.0 tools that can be implemented into traditional classroom settings. Teachers must allow students to increase their collaborative abilities through new tools as a supplement to their conceptual knowledge (Hansford and Adlington, 59).

Hansford and Adlington, identified two types of web users: digital natives, and digital immigrants. The term "digital native" refers to young people born into a technology rich world. Adults living in a vastly changing world forced to adapt to innovations are considered "digital immigrants". The two groups use the internet in fundamentally different ways. Hansford and Adlington state that digital natives use the online world to share, evaluate, create, report and program with each other differently than digital immigrants. There is also an ideological gap in the way in which younger people are willing to share ideas compared to the older generation (Hansford and Adlington, 57).

In the case study conducted by Alain Desilets and Sebastien Paquet in 2005, they highlighted the importance of new computer-supported collaborative learning (CSCL). A different group of students were observed every semester over the course of three years. The

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

teachers utilized a Wiki as a collaborative tool. A wiki is a completely open source tool where information can be edited and viewed by anyone. A wiki allowed for small groups of students to build group communication skills, utilize images and video rather than just text, and self edit at virtually any time. The teacher was also able to post comments and revisions directly to the page to be seen by multiple students at their personal discretion, whether at home or at school. The wiki is also a very goal oriented tool, allowing students to self regulate their progress and constantly stay aware of their deadlines ((Hansford and Adlington, 60). A wiki serves as a very practical way of increasing collaboration and allowing students to search for information and images available to them over the internet. Wikis are an innovative way to build a student's creative side. User-focused design is becoming increasingly important in today's world as there are various products available and consumers are more educated.

ii. New Media: Broadening the Scope of Education

Technology is becoming increasingly important for young professionals striving for a career in marketing, advertising, or design and development. Interaction design is a theory developed by professor Anthony Faola of Indiana University and Purdue University Indianapolis focused on decreasing user error, while increasing the efficiency of task execution. The goal of applying interaction design is to create products that create less frustration and higher level of satisfaction for users. Professor Anthony Faola proposed the "Knowledge-Operators-and-Domains Model (KOD)", as a means of emphasizing the importance of human-centered theories and practices drawing particular attention to ethnography and usability-based studies (Faola and Davis, 2).

In a survey conducted by Faola and Davis, they found that 24% of faculty said they did not teach interaction design theory. According to Faola, designers should explore form and function, but put an increased emphasis on content, because content is what human beings seek in their digital experiences (Faola, 3). The KOD model emphasizes the importance of recognizing the individuality among human beings as the basis for all design in twenty first century. New Media user focused approaches have been the basis for new innovations and collaborative internet technology.

iii. Bridging the Gap: A Professor's Application of Crowd Sourcing

The advent of collaborative technology allows for innovative new ways to increase the efficiency of tasks while not sacrificing quality. James Surowiecki introduced a new term entitled "the wisdom of crowds," which includes four criteria: diversity of opinion, independence, decentralization, and aggregation. A prominent example of the wisdom of crowds is a wiki. Yet, the concept can be attributed to other mediums to increase the efficiency of a number of tasks.

Lui von Ahn, a Computer Science Professor at Carnegie Mellon University, created a way to utilize the wisdom of crowd's theory to help tag images more efficiently. "Tagging" is a process in which individuals assign keywords to images to make them more easily accessible in a search. To entice people to manually label images, he created a cooperative game to be played with a randomly assigned stranger over the internet. Rather than hire a small group of individuals to "tag" images, the program he created allowed for the task to be accomplished considerably faster. Players try to guess which words or phrases their partners would use to describe a certain image. Once both players type the same description the program makes note

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

of the specific words used to describe the image, and a new image is presented the people playing the game. Individuals repeat the process for as long as they choose. Professor Ahn recently licensed the idea to Google, the largest search engine on the internet, who now uses the game to improve the quality of their image results. (Hoffman, 17)

The implications of this new form of collaboration are enormous. According to a poll conducted by the TNS group based out of the United Kingdom, nearly one third of the average adult's leisure time is now spent on the internet. The tagging of images fits into this category. For Professor Ahn, this was an activity that saved employees countless hours of monotonous and time consuming work. Yet, the users volunteered their free time to play a game that is both mildly challenging and highly profitable for the creator. This is another form of work specialization and outsourcing that can be explored. By creating the program, the employees who would have been labeling thousands of images now have the opportunity to spend their time performing tasks more representative of their skills. (Hoffman, 17)

iv. Technology for Enrollment, Communication, and Student Success

Universities can utilize technology during the recruitment process to keep in contact with students and to increase the student experience by providing new innovative education methods. In a survey conducted by the Pew Internet and American Life Project, forty two percent of respondents said the internet played a major role in their college search. Students and parents are increasingly relying on the internet as their main source of information regarding their college choice (Salas, 103).

The attractive webpage that is both manageable and attractive is more important than ever. For a lot of students, a website is their only impression a University. Tools exist that allow for university staff to track the amount of traffic on the site and analyze the friendliness with which the visitors navigated the site. The number of page viewed per visit may indicate that visitors leave before finding the information they were looking for, while a large number of page views may point out information is too difficult to find on the site (Salas, 104).

To deal with customer service and satisfaction, universities have adopted instant messaging, a new media tool, to provide a higher quality of service. Phone service is limited in the fact that one employee can only serve one customer at a time. In a poll conducted by Florida International University, students said they were willing to wait ten minutes on average for an instant messenger representative while only four minutes for a phone representative when put on hold. Another major advantage of adopting instant messaging to respond to with customers is the opportunity to efficiently answer the questions of multiple customers simultaneously and people are willing to wait for their responses. Universities are constantly dealing with young, digital natives that include these technologies in their daily lives. The shift in customer service focus to instant messaging can be adapted by any business or organization hoping to reach young people ranging from 16-24 (Salas, 107).

Students are continually looking for ways to use technology in the classroom. Apple realized the demand for new multimedia services and created iTunes U, an aggregation site where faculty and staff can add content for students to download anytime, anywhere (Salas, 108). Apple lists the objectives of iTunes U as: stimulating creative uses of digital technology in academic and student affairs, engaging students with technologies that fit their learning styles,

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

and make knowledge available for students, faculty, alumni, and the public. iTunes U has already been adopted by some of the top institutions across the country including Duke University, Stanford University, and The Massachusetts Institute of Technology.

These resources and newly developed tools benefit students during the application process and most importantly within the classroom. Schools across the United States are finding new innovative ways to incorporate new media technology such as Wikis, blogs, and podcasts into their standard curriculums. Eventually, many of these students will move out of the school and bring their knowledge of new media technology to their respective jobs.

Business Applications of Web 2.0 Technology

Web 2.0 technology utilized within the classroom has applications across the business world. Recently, there has been a movement in the adoption of online social networking as a cornerstone of many business' marketing strategies. Sixty% of the CEOs surveyed by PricewaterhouseCoopers consider networks the most important factor in their strategies, much more than innovation or technology. They attribute this to the speed and exponential nature of change in the business world. Some of the major reasons companies are adopting Web 2.0 technologies are for business productivity (74%), for competitive pressure (64%), for specific problem solution (53%), for partner recommendation (53%), for employee request (45%), and for bundled service (25%) (Shuen, 32).

Start-up companies are using Web 2.0 technology to ease their transition into established markets by proposing partnerships with their fellow start-up competitors rather than creating rivalries. The key is that allies can join forces in expanding and opening up markets to create a situation in which all parties benefit. Competitors tend to divide markets they tend to never take advantage of their potential expanded networks.

A.G. Lafley, CEO of Procter & Gamble, made his consumer product company a Web 2.0 innovation success story by raising new product development success to an astounding 80%, compared to the industry average of thirty percent. Thirty five percent of the ideas for new products are gained through collaborative web sites, such as InnoCentive. This website utilizes the ideas and feedback of millions of contributors, not just the 9,000-person research and development staff within the organization (J. Nicholas Hoover, 1).

II. BEST PRACTICES

There are a number of organizations within the Binghamton community using new technology in creative ways such as Broome Community College, GrafiQa Graphic Design, BingPop.com, and the Know Theatre. These businesses are dedicated to constant innovation and they continually work to understand how to advertise to their target markets.

Broome Community College is the first community college in the United States to be given access to iTunes U. One of the major supporters of iTunesU at Broome Community College is Professor Mary Donnelly, an English professor with a passion for online communities. Professor Mary Donnell, describing the benefits of iTunesU, stated, "iTunes you provides us with endless space...we are not dependant on university owned technology. The least we can do is

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

be good citizens of the site and provide people with as much content as we can for free (Mary Donnelly, April 18th)." iTunes was impressed with Broome's commitment to providing information not only for students, but for anyone in the community, completely free of charge. Professors and technicians at Broome Community provide small clips anywhere between 30 seconds and 15 minutes. The beginning and end of the small clips contain the Broome Community College Brand insignia. This serves to advertise for the university anytime the video is viewed. Each of the videos is unique in their subject matter. The clips cover diverse topics ranging from "How to cite MLA format" to "Baseball in America." The length of the clips allows students and eager observers to reach the content they want to learn about directly rather than having to sift through an hour long lecture as is the case at other major institutions. Professor Donnelly sees iTunes as more than just a fun tool, it also increases the efficiency of tasks being accomplished within the classroom.

Within the chemistry department, forty five minutes worth of instructional videos have to be viewed before students can take part in lab. With the addition of iTunesU, professors can now assign the safety videos to be viewed at the student's discretion outside the classroom freeing up more time for lab.

Professor Donnelly also believes educating students in technology is equally important to educating them in their field of study. "It is about access, it's about talking to students in a language they understand, and it's about getting students to catch up to a world they are already living in (Mary Donnelly, April 18th)." It is assumed that students coming into a university already possess all the technical knowledge necessary to manage all that is expected of them; however that is not always the case. Professor Donnelly and the professors at Broome Community are dedicated to making sure their students understand what technology is important to their fields of study. Professor Donnelly is also a major supporter for using social media networking as a means to break down the barrier between teacher and student as she believes "it fosters transparency." She is not alone in the Southern Tier in believing Social Media can play a major role in relationship building.

GrafiQa Graphic Design is a social media marketing consulting company specializing in bringing businesses up to date with the marketing tools of the day. In a recent interview with Bijoy Datta, he said, "We help [our clients] understand that social media is another tool (like direct sales, networking, advertising) to connect and build relationships with their customers, clients and prospects (Bijoy Datta, April 18th)." The men and women at GrafiQa feel that social media marketing is a strong supplement to traditional marketing techniques in this community that can only help the future growth and success of forward looking businesses.

Mr. Datta said, "In the Southern Tier, a great opportunity exists right now for businesses and not-for-profits to make inroads in their markets because we're slightly behind the curve in comparison to larger metro areas, like L.A. or New York. So almost any business or not-for-profit can use social media to position themselves as experts and then gain leverage over their competition (Bijoy Datta, April 18th)." Business men and women are using social media as a tool to demonstrate their expertise in a specific field. By maintaining a blog, customers are able to see the level of knowledge the people within a specific business possess even before interacting with them. Keeping an up to date website with a consistently updated blog is a form of direct marketing made possible as a result of social media.

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

Businesses all across the country value word of mouth as an efficient and inexpensive marketing tool. Mr. Datta described how he believed social media marketing could impact word of mouth, he said, "Good products/services/companies can gain market share by good word of mouth through social media since all social media is really a giant community for people to talk about what they like and don't like (Bijoy Datta, April 18th)." Rather than use interruption marketing as is common with television commercials, business men and women can target customers searching for information on the web. Social Media marketing is about providing customers with information they need rather than just getting a product on their minds by using traditional advertising.

One of the major myths of Web 2.0 is that only young people are using social media tools. Mr. Datta defied the myth when he said, "Younger demographics certainly use social media more than senior citizens. But the demographics aren't as black and white as most people think. The latest statistic I've read about Twitter shows that the average user is 41. Facebook's users aren't just teenagers either. And, as the next 5-10 years passes, any age gap will diminish even further (Bijoy Datta, April 18th)." As Generation Y gets older and the average adult spends more of their leisure time on the internet, the importance of social media marketing will increase. GrafiQa is a company of the future looking to consult Binghamton businesses on how to keep up with the newest trends. Blogs are one of the most direct ways to disseminate information to interested readers at no cost to the writer.

Joshua B Ludzki is a radio host and also the creator of BingPop.com, a blog focusing on the most interesting things going on in Binghamton. Mr. Ludzki believes that "tone is equally important to content" when trying to draw the attention of the Generation Y audience. Mr. Ludzki feels that traditional Binghamton media currently "plays to an older demographic" and that younger audiences are being underserved. His blog, BingPop.com is directed towards the younger underserved audience and it communicates the stories Generation Y people are interested in.

Mr. Ludzki's blog stands out because he realizes that "youth culture is a culture of convenience (Joshua B Ludzki, April 18th)" and younger people are looking for short interesting articles directly addressing the main points. Larger media organizations need to acknowledge and access the way today's youth function. Mr. Ludzki recently interviewed Matt Edwards, the Artistic Director of the Know Theatre. He spoke about an ad campaign for their upcoming play "The Two of You." The ad campaign is unique because it allows people to participate in their marketing campaign rather than just be talked at.

In the new marketing campaign, the Know Theatre creative staff pretended the main character of the play is a real girl looking for her father. The actress portraying the girl is depicted in in every picture to draw awareness and create a sense of intrigue. When Mr. Ludzki asked Mr. Edwards about participation in the campaign, Mr. Edwards said, "Are people helping January find her dad, yes. She has a growing following on Facebook and she's started a Twitter and YouTube account. You can also check out her website at <http://www.DoYouKNOWHank.com>." The Know Theatre is creating buzz around their play by using nothing but the free tools available to them on the internet, all it took was creativity.

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

III. RECOMMENDATIONS

To become successful in the current economy, an increased number of businesses in the Southern Tier must acknowledge changes in the way people are communicating and interacting as a result of Web 2.0 technology. Successful individuals and businesses have integrated new forms of technology as a long term approach to securing younger audiences. Whether it is through personal branding via social media, or by attempting to increase efficiency through podcasts rather than redundant explanations, innovation is constantly taking place.

Currently, the majority of Binghamton businesses are thinking in terms of short term success rather than long term sustainability. However, certain Binghamton business and learning institutions have increased their community involvement and brand recognition by using Web 2.0 technology. The success of these pioneering businesses should act as a form of encouragement to entice the majority of Binghamton businesses to begin exploring the benefits of supplementing their current efforts with new marketing tools. The first step in gaining the attention of the young people in Binghamton is to become internet proficient and begin speaking the language of "technology natives".

In summary, my recommendations are to:

- Utilize free accessible technology to increase brand recognition and amount of community involvement
- Embrace social media as a way to identify yourself as a expert within your field
- Begin a shift towards advertising on the internet as a supplement to local television and radio
- Explore articles discussing the impact of technology and the way people are communicating

IV. Acknowledgements

I would like to sincerely thank Professor Mary Donnelly, Joshua B Ludzki, and Bijoy Datta for their contributions to my research.

APPLICATIONS OF WEB 2.0 TECHNOLOGY IN THE CLASSROOM & WORKPLACE

Work Cited

Datta, Bijoy. Personal interview. April 18, 2009.

Donnelly, Mary. Personal interview. April 18, 2009.

Hoffman, Leah. "Adults Get Social." Communications of the ACM 52.3 (Mar. 2009): 17-17. Academic Search Premier. 31 Mar. 2009

Hansford, Diane, and Rachael Adlington. "Digital spaces and young people's online authoring: Challenges for teachers." Australian Journal of Language & Literacy 32.1 (Feb. 2009): 55-68. Academic Search Premier. EBSCO. [Library name], [City], [State abbreviation]. 31 Mar. 2009

Howard, Bill. "Analyzing Online Social Networks." Communications of the ACM 51.11 (Nov. 2008): 14-16.

J. Nicholas Hoover, "At Procter & Gamble, The Good and Bad of Web 2.0 Tools," *Information Week*, June 23, 2007

Ludzki, Joshua B. Personal interview. April 18, 2009.

Salas, Grace, and Julie S. Alexander. "Technology for institutional enrollment, communication, and student success." New Directions for Student Services (Winter2008 2008): 103-116. Academic Search Premier. EBSCO. [Library name], [City], [State abbreviation]. 31 Mar. 2009

Shuen, Amy. Web 2.0: A Strategy Guide. Sebastopol, CA. O'Reilly Media, 2008.