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Richard Sessions
San Jose State University, richard.sessions@sjsu.edu

M. L. Roldan
San Jose State University, malu.roldan@sjsu.edu

S. Iyer
Hewlett Packard Labs, Palo Alto

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Malu Roldan, San Jose State University
Richard Sessions, Altis Solutions
Subu Iyer, Hewlett Packard Labs Palo Alto

Abstract

A culture of innovation is growing in a platform largely invisible to faculty but virtually a homebase to our students. *MySpace's* sixty-five million users and *Facebook's* seven million users in 2,000 schools (Levy and Stone 2006) constitute a social network that is showing potential as a platform for entrepreneurship. This network is an engaging setting for teaching students to research markets, build networks, and test and launch products and services. In a sense it is the digital version of the social networks that entrepreneurs form and work in the process of refining their products and obtaining that seminal meeting with the right and motivated venture capitalist. As a network that is open to all, it creates opportunities for entrepreneurs who are outside mainstream innovation circles and/or for the launch of non-traditional ventures—such as those that seek to meet the double bottom line of social need and economic viability.

Introduction

Introducing students to the importance of networking in their careers and in entrepreneurship has always been a struggle. While students hear about the importance of networking ad infinitum from faculty, potential employers, and career center staff, it's often a struggle for all to communicate just how to identify networks students are already part of and how to plug in to those they need to be part of. Part of the difficulty is that traditional social networks associated with entrepreneurship—e.g. the venture capitalist community headquartered on Sand Hill Road, Palo Alto, California—are exclusionary just by the nature of social networks— those who are most alike are most likely to be most accessible to each other and thus part of each others' social networks. The exclusionary nature of social networks serves as a workable if imperfect filter for identifying high-potential ideas that deserve the attention of investors. Furthermore, today's students, dubbed the millennials (Oblinger 2003) have grown up in social networks that are unique to their generation, incorporating the internet and other information technologies that they have taken for granted since they were born. It is not uncommon for current students to hang out with friends from around the world daily at a multi-player online game site or a social networking site like *MySpace*, the 21st century equivalent of the malt shop (Levy and Stone 2006), bowling alley, or church choir.

This paper proposes to bridge this generational disconnect regarding social networks by placing the platforms that today's students use for social networking front and center as the basis for teaching them about networking. In this special case, we propose to use online social networking platforms as a basis for building and understanding the networking activities necessary to develop and promote entrepreneurial endeavors. The range of applications and tools comprising this platform may be loosely categorized as those of Web 2.0. We will start the paper with a discussion of the technologies and applications of Web 2.0, then discuss the entrepreneurial applications of this platform, provide ideas for incorporating them into entrepreneurship courses, and end with a discussion of the issues arising from their use in educational settings.

Web 2.0

"Web 2.0" is a phrase coined by O'Reilly Media in 2004 to refer to the second-generation of Internet-based services that use "the power of the web to harness collective intelligence." (O'Reilly 2005) The idea, however, dates as far back as the 1960s and JCR Licklider's thoughts on using networked computing to connect people in order to boost their knowledge and their ability to learn (Alexander 2006). Simply stated, Web 2.0 is comprised of "web sites that get their value from the actions of users" as opposed to Web 1.0 where value was supplied by formal institutions. Web 2.0 is characterized by open communication, decentralization of authority, freedom to share and re-use. Social software has emerged as a major component of the Web 2.0 movement.

The very young Web 2.0 moniker is already much maligned and debated, perhaps because it is young but also because the technologies it encompasses are rapidly evolving (Alexander 2006). Nevertheless, for our purposes, it will suffice to say that the key feature of the Web 2.0 platform that most pertains to our discussion is its focus on building and propagating social networks, communities, and ground up participation. Web 2.0 tools and applications are built on the notion that content and spaces on the internet are products of social interaction—a site on Web 2.0 assumes and takes advantage of the fact that the internet is a social platform. Every item published on Web 2.0 is meant to be displayed (albeit occasionally to a select social network) and commented upon so that the final result is not so much the work of an elite set of authors and/or editors (as is a page on CNN.com or WSJ.com) but rather a collaborative effort among some combination of everyday joe and jane bloggers, ecotourist photographers, established commentators, mainstream news services, and itinerant taggers, raters and annotators (as is a page on http://memeorandum.com/). The core elements of Web 2.0 that are important for this discussion are:

1. Social Networking tools like *MySpace*, *Facebook*, *Flickr*, and *JotSpot* that are used to develop and publish original content into the Web 2.0 space for viewing and augmentation by anyone with an inclination to do so.
2. Meta-tagging and social bookmarking sites like digg.com, del.icio.us, and rawsugar.com that are used to add and organize tags, comments, discussions, and annotations to material published on the Web 2.0 platform.
3. Aggregation sites like wikinews, memeorandum.com, and www.google.com/press/zeitgeist.html that organize Web 2.0 content, mixing edited articles with everyday user blogs, comments, and annotations.
4. Search sites like blogsearch.google.com, feedster.com, and daypop.com that provide searching capabilities for information specifically on the Web 2.0 platform.

In this paper, we will discuss how these Web 2.0 elements might be used to introduce students to the networking activities necessary for launching entrepreneurial endeavors and in the process also highlight Web 2.0 as itself a viable platform for launching such endeavors. We should note though that testing, promoting, or collaborating on an idea using a Web 2.0 network comes with the same risks of failed collaborations and intellectual property rights infringement as does face-to-face collaboration. As with the latter, entrepreneurs need to take care to only reveal as much of their idea as is needed and to, as much as possible, restrict access to the conversation to invited and qualified viewers and testers. The primary ways in which Web 2.0 serves as a platform for entrepreneurship are:

1. A global "market as a conversation" platform for testing an idea with one's target market. In this case, an entrepreneur can create an online blog on his/her idea (or some element of it that is non-proprietary) and attract comments on the viability of the idea. In addition to global reach, it is also possible to target one's blog to specific groups most likely to have knowledge about the idea. For example, *Facebook*, currently limited to .edu users is planning to build regional networks of users, allowing a blogger to test an idea in a limited region that may be its best target market (Williamson 2006).
2. A global platform for researching both mainstream and grassroots information on a target market—no matter where it might be located in the global physical world, or digital space. Search services focused on Web 2.0 postings (blogsearch.google.com) provide easy access to the hybrid information sources of the platform—as postings identified using these sites integrate links to mainstream sources into blogs, and tags annotate mainstream and less traditional sites. Map tagging sites like tagzania and wikimapia, when fully developed, could serve as an invaluable source of local knowledge.
3. A global platform for collaborating on an idea. An entrepreneur can use a blog on an idea as a way of identifying folks from around the world who might want to collaborate on his/her idea. Alternatively, an entrepreneur can join a Web 2.0 site specifically designed for collaborative creativity, be it with a goal of producing a document (Writeboard), a music composition (http://www.rifftrader.com/), a video (http://syncvue.com/) or a concept map for a product design (http://cmap.ihmc.us/) that will constitute the core idea for a startup.
4. A global platform for promoting a product or service and creating buzz that can also generate attention among mainstream media outlets. Blogs and tags can be used to generate buzz for a given product or service (to paraphrase a popular take on publicity—"any buzz is good buzz"), allowing promoters to bypass traditional methods of promotion to reach an audience and/or allowing promoters to use non-traditional methods to

attract the attention of mainstream media outlets. For example, kiva.org created buzz around its global microlending service because from the start stories and funding requests of its microentrepreneurs were published as blogs, attracting not only the attention of potential microlenders but also that of top blogosphere sites, and eventually top media outlets, making it one of the most talked about startups in very little time. Using a MySpace.com site, comedian Dane Cook was able to generate buzz and get invites to top media outlets without going through the usual late night talk show round robin (Levy and Stone 2006). Although as this promotion channel becomes part of the arsenal of the mainstream media machine, entrepreneurs need to become much savvier about their promotional efforts to wrestle the attention of the Web 2.0 audience away from the slicker, better-produced efforts of traditional marketers.

5. A global platform for building the connections, buzz, and product/service parameters that can attract funders to a start-up. Lastly, as funders have become enamored with Web 2.0 and gained knowledge of it, entrepreneurs can now use market information generated on the platform to enhance their pitches to potential funders. Such information can include not only buzz generated for a particular product or service but also number of eyeballs already glued to a start-up's Web 2.0 presence. While the latter may not lead to funding for the idea that the start-up's founders pitch, it may still lead to some form of funding because of the access it provides to a captive audience in a demographic that is attractive to well-paying advertisers.

Evidence suggests that VCs are indeed taking a greater interest in Web 2.0 ventures. This enthusiasm about Web 2.0 start-ups has been underscored by a newly published report from DowJones *VentureOne* that found investments in Web 2.0 companies hit $262.3 million in the first half of 2006—more than the $199.2 million invested in this area during all of 2005 (Dow Jones Venture Capital). One reason for this is that Web 2.0 startups, like most software companies, tend to need much less money than other start-ups and therefore carry less risk for the funders. Many ventures during the "dot com" bubble spent multiple-millions of dollars on television promotions and other marketing; however, Web 2.0 companies tend not to spend much, if anything, on advertising, relying heavily on word-of-mouth promotion. According to *VentureOne*, Web 2.0 firms raised an average of $4.4 million per deal in the first half of the year, while the median for all types of venture financing was $7.5 million per deal (Dow Jones Venture Capital). Aside from attracting venture funding, Web 2.0 enterprises are being bought up by traditional and online media giants eager to grab a lead (or perhaps hedging their bets) in this emerging media channel—witness recent high profile purchases by Murdoch's NewCorp (*MySpace* for $580 million) and Google, Inc. (*YouTube* for $1.65 billion).

As today's successful Web 2.0 entrepreneurs become part of tomorrow's investor groups, it is possible that they will pay attention to new ideas that bubble up and gain significant interest among the Web 2.0 audience, in addition to those that do so in the face to face social networks of traditional funding circles. This could potentially open up funding opportunities for a wider range of entrepreneurs all over the globe who may not have easy access to mainstream funding networks, or who may be promoting ideas generally outside of mainstream funding trends (e.g., social entrepreneurial ventures that target small, underserved markets).

As seen from the discussion so far, the potential of Web 2.0 as a platform for entrepreneurship is great and will continue to grow as the platform evolves. Similarly, we are just beginning to realize the potential for using Web 2.0 to teach students about entrepreneurship, and in particular the core role that social networks play in every aspect of innovation and commercialization of their ideas. Two areas of greatest application illustrate this point, market research and promotions.

Market Research
Professors can point out that students with *MySpace* profiles (and friends linked to them) already have an extremely useful network for conducting market research on an entrepreneurial idea. Just as students might discuss their ideas with friends and family, they could test their ideas with this online network of friends. Professors may also want to use this as an opportunity to work with students to craft inquiries in ways that do not reveal too much about student ideas while eliciting information on how viable the product might be among target users (in this case in the age and geographical demographics that match students' *MySpace* networks). Students may still elect to openly discuss their ideas, perhaps using video or pictures of a prototype to give their

friends a clearer sense of what they are proposing. Alternatively, students may choose only to seed a conversation on topics related to their ideas, either by posing questions or by posting a statement that their friends can then comment on. Students targeting markets that are different from the *MySpace* networks they've built may choose to seed conversations in various tagging sites that reach their intended audience. For example, students interested in reaching a foreign market may elect to seed conversations in a mapping wiki (e.g., *wikimapia*), placing tags strategically in hopes of attracting locals in the area to post related tags or comments.

To augment library research, students could be directed to social bookmarking sites (e.g. del.icio.us), aggregation sites (memeorandum), and blog search sites (blogsearch.google.com) as a way of accessing current information on a market, knowledge base, or technology pertinent to their ideas. This is especially useful for ideas that may not be covered by mainstream sources—such as a social entrepreneurial endeavor that addresses a social need in a region generally ignored by the mainstream press. An important adjunct to this activity is a discussion of the level of trust that students may want to place on various sources (library vs. web sites vs. blogs) and how the value of an information source is today as much the result of an association with a brand name (e.g. *The New York Times*) and its attendant traditions, as it is the result of some form of mass social action in the form of large numbers of contributors (via wikis), a large number of taggers (via social bookmarking), or a large number of linkbacks and subscriptions (via blogs, RSS feeds, and websites). Nevertheless, most sources in the blogosphere are hybrid documents integrating bloggers' thoughts with links to and quotes from traditionally produced materials, and thus, bring together information that is valued in various ways.

Once they have a core set of key words and websites related to their idea and market research, students can set up a watchlist using the technorati.com service. This site will put together a feed that tracks the buzz surrounding the students' ideas, by noting developments and discussions involving the key words and websites selected by students for their watchlists.

Promotions

While students will be familiar with the use of *MySpace* for the promotion of bands, movies and events, they may not be so familiar with how it has been successfully used to bypass mainstream promotional vehicles to launch new ventures. Professors can use the case of comedian Dane Cook as an example of how *MySpace* (http://www.myspace.com/danecook) can be a useful platform for launching their ideas. As mentioned in *Newsweek* magazine, Dane Cook jumpstarted his career via his *MySpace* profile established in 2003, accepting all "be my friend" requests (Levy and Stone, 2006), attracting over 1.5 million friends, and starring in a movie in wide release by 2006. Students may choose to build a *MySpace* profile for their entrepreneurial ideas instead of or in combination with a traditional website. In the process they can learn about the differences between Web 1.0 and Web 2.0, particularly in terms of the impact of social networking on the amount of buzz they can generate for their ideas. Buzz is generally more likely to grow when a site is open to input from its audience, as the *MySpace* profile is suited to encourage.

Students working on social entrepreneurial ideas will also find, as many nonprofits have, that Web 2.0 offers many opportunities for promoting a cause for an underserved, largely invisible group. There is nothing more compelling than a set of pictures, posted and intelligently tagged in flickr.com, depicting the plight of potential beneficiaries and the solutions that the students propose. For example, Interplast, a nonprofit that provides free reconstructive surgeries to persons in developing countries, brought attention to their service by publishing photos on *Flickr*. Its owner has established a *Flickr* group (http://www.flickr.com/groups/22022032@N00/) for organizations wishing to reach international aid organizations. As part of their promotions plan students may search for groups similar to this that will be most appropriate for raising awareness of the issues they are addressing with their social ventures. Techsoup.org provides a great resource for learning about such social networking sites (Satterfield 2006).

Professors may want to give students an exercise in intelligently tagging their Web 2.0 documents so that they maximize their chances of bubbling to the top of user searches. The best information and ideas can be buried in the information explosion occurring around both the websphere and the blogosphere. Aside from producing compelling material that incorporates multimedia and well-written stories and idea statements, student entrepreneurs will

have to think about ways of tagging their documents to make them more visible to their target audiences. This will involve some brainstorming as to the most likely search terms used by folks who may be interested in the students' services or products. Some of this brainstorming can be helped along by going to a tagging site like del.icio.us, searching for sites or tags with an association to the students' ideas, and looking at the tag clouds associated with the sites to determine which tags seem to be most commonly used. Tag clouds are depictions of all tags associated with a site where the appearance of a tag is dependent on its popularity (a popular tag appears bolder and larger than a less popular tag).

Lastly, professors can discuss the importance of social networks for building reputations and images by making sure that students consciously hone their Web 2.0 postings to match the requirements of the groups they are targeting with the post. Students may be asked to target two social networks that cater to vastly different groups—e.g. *MySpace* vs. *LinkedIn*. While *MySpace* caters to a more informal, young crowd, *LinkedIn* focuses on networks of professional contacts. Students can develop profiles for both sites and professors can use this as a basis for a discussion of the importance of honing your marketing message to fit your audience, and the undeniable fact that whatever gets posted in the digital space, however shortlived, has a life of its own and is extremely difficult to revoke. Thus, underscoring a key difference between wide-ranging online social networks and a more circumscribed, perhaps more forgiving and forgetful, face-to-face social network.

Conclusion

The discussion above touched on several issues related to the use of Web 2.0 in education. We discuss several key issues in the next section which we feel should be considered by professors wishing to try out this technology in their classrooms.

With Web 2.0 comes controversy about information value and factual credibility. Entrepreneurs are launching all sorts of sites and services that are built on data that they "scrape" out of third-party sites and databases. Sometimes the data is good; sometimes it is not. The process of chopping up and re-bundling data from many different sources can amplify inaccuracies that, to the user, are invisible. Unfortunately, much of Web 2.0 tends to put emphasis on opinion over reporting (Nicholas Carr, Rough Type, comment posted on October 3, 2005). The promoters of Web 2.0 tend to venerate the amateur and distrust the professional. The theory is that the collective wisdom of the masses will prevail. However, there is often no control for the biasing effects of non-respondents/non-participants, and an over reliance on the averaging of opinions on the assumption that the central tendency is where the best insights lie.

Unfortunately, because of the availability of cheap-to-free broadband access and the ease of use and familiarity of search engines students are highly likely to fall prey to the inaccuracies of Web 2.0 sites. Instead of going to a library, bookstore, or digital library site, most college students go straight to the Internet for their first source of information. To wit, Wikipedia is the most visited encyclopedia website while the *Encyclopaedia Britannica* is down at #6 according to web traffic rankings site Alexa.com!

Linda Williams, president of the American Association of School Librarians, says communal online resources such as *Wikipedia* "aren't acceptable resources for students—but perhaps they will be so in the future" (Riddell 2006). *Wikipedia* founder Jimmy Wales admits, "Our average quality is high, but it's uneven. We know there are areas where we don't do the job we should, and others where *Encyclopaedia Britannica* can't touch us. But in the future, someone's going to look at an article on *Britannica* and say, 'Wait—this was written by one person and only three people reviewed it? Whoah! How can I possibly trust that? I demand rigorous community review'" (Jardin 2005).

To compound the problem, traditional media is shifting away from large investments in bureaus and hard reporting, and towards cheaper content and opinion-making. Blogs are the significant instance of this trend. Guy Kawasaki notes at the top of his blog: "Blogger, n. Someone with nothing to say writing for someone with nothing to do" (Guy Kawasaki, *Signal without Noise* blog). This statement is obviously somewhat tongue-in-cheek as Guy Kawasaki is a well renowned and respected individual (and does maintain a blog). However,

anyone with access to a computer can blog. And unfortunately, entrepreneurs are off launching ventures like *PayPerPost*—a site that will pay bloggers to write positive comments about products and services. Sites such as this destroy the credibility of tagging systems and skew search results towards the products and services with the most cash to send off to *PayPerPost*. In the future, we expect to see the development of second-order tagging systems, where bloggers and taggers themselves are rated as to the quality and veracity of their posts, much as current online stores are rated for their dependability and the quality of their services.

What does this mean with regards to the use of the new tools of Web 2.0 in educational settings? The rise of *Wikipedia* and other socially generated reference materials as well as blogs has created a new set of challenges for educators. It underscores the need for educators to use every occasion of Web 2.0 classroom application as an opportunity to teach information-literacy skills. As always students should be encouraged to: 1) Know the credibility of their sources and the validity of their information, 2) Use primary sources, and 3) Cross-check with more than one source. Our above discussion of Web 2.0 applications in entrepreneurship courses sought to incorporate these principles in the suggested activities.

A related issue is one of intellectual property and proper attribution of material co-opted by students into their own Web 2.0 creations. The growing creative commons movement and open source communities, and the proliferation of mashups (sites that are aggregated from a mishmash of web applications and databases), seems to have softened discussions regarding copyright laws and ownership of web content. Still, this remains an open and potentially expensive issue to work out, particularly now that a company with vast resources (google) has purchased a start-up with limited resources but a large inventory of material clipped from material owned by major media content providers. As such, a key information literacy lesson that students should learn from their Web 2.0 classroom experience is the importance of appropriately citing sources and recognizing the contributions of all participants in any creative endeavor.

Lastly, one of the most widely debated aspects of online social networks is its security, or lack of it. There are privacy and security concerns when one exposes thoughts and ideas in a blog or a web site. Online social networks, by their very nature are designed to be public. In contrast, physical world social networks give people relatively more power to selectively distribute information to whomever they choose—or at least it takes more effort and a little longer for someone to distribute illegally obtained documents in the physical world than it does in the digital world. We believe the security and privacy aspects of such social networks are critical and there are several efforts in the social networking arena to address these aspects. For example, both *LinkedIn* and *MySpace* provide users with the ability to accept or reject a connection request (or a "be my friend" request in the case of *MySpace*). Similarly, online social networks such as *Facebook* limit access to certain groups, either through their domain (.edu) or region. Yet, the systems are not airtight and any faculty member has to monitor postings to make sure they are appropriate and guard against the involvement of predators and spammers in the social networks they are using in their classroom activities.

This paper is intended as a guide for an initial foray into entrepreneurial applications of Web 2.0. We are convinced that it is an engaging setting for students to learn about the social nature of entrepreneurial endeavors. It can greatly facilitate the transfer of skills current students have built in their generations' preferred online social networks to the practice of researching and promoting their innovative ideas, and improve students' information literacy. Web 2.0 is also an excellent platform for understanding and raising awareness of groups that could benefit from socially oriented entrepreneurship. It is our hope that the growth of Web 2.0 will open up greater opportunities for ventures seeking to address underserved and small markets previously invisible to the entrepreneurial and venture funding communities.

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