Psychology 2.0: Harnessing Social Networking, User-Generated Content, and Crowdsourcing

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"Don't fight the Internet."
—Eric Schmidt, CEO, Google

The goal of Web 2.0 is to work with the World Wide Web rather than against it. That is, it should design services and applications that harness the inherent strengths of the Web rather than create services that view the Web only as an afterthought rather than as a strategic piece of the overall enterprise. This article contrasts Web 1.0 and Web 2.0 and discusses ways that psychologists can harness Web 2.0 trends like crowdsourcing, user-generated content, and social networking.

A common example that illustrates the differences between Web 1.0 and Web 2.0 is that Encyclopaedia Britannica's online site is Web 1.0, whereas Wikipedia (an online user-edited encyclopedia) is Web 2.0. Web 1.0 is top-down, static, and unidirectional. Web 2.0 is bottom-up, fluid, and bidirectional. Encyclopaedia Britannica is written by experts, tightly controlled, static, and slow to change. Wikipedia is written by both experts and laypeople; it is controlled not by a series of administrators but a community of volunteers; it is very fluid, as any individual can edit any subject at any point, and it changes by the minute. Contrary to conventional wisdom, an article published in the journal *Nature* compared the science entries for both Encyclopaedia Britannica and Wikipedia and found that Wikipedia was very close to Britannica in terms of accuracy (Giles, 2005). (Nonetheless, Wikipedia's early reputation for questionable veracity persists; school teachers and college professors continue to disdain it, and most refuse to accept it as a credible reference.) Other Web 2.0 trends include moving software from being primarily hosted on a personal computer or desktop to being hosted on the Web, or "cloud"—the idea being that people are increasingly connected to the Web as a platform rather than to their individual desktop or laptop (O'Reilly, 2006a). Web-based e-mail like Gmail or Yahoo! is another example of this process. Individuals can access their e-mail from any computer or smartphone because the e-mail is stored on

the Web. Contrast this with e-mail that is tied to a personal computer. The user can access e-mail only through his or her own computer. In addition, innovations in computing are less based on the actual code (the 1s and 0s), or programming, and are becoming increasingly based on specific applications that harness the human capital of individuals and unique groups of users. The value of the Web site increases with the number of people using it. This is known as a network effect (Metcalfe, 2007). For example, eBay is less about the online auction software program and more about the millions of people who inform, populate, and run the application. The code itself is not powerful or revolutionary; but the code as built on top of the millions of people using it is what makes eBay powerful and revolutionary.

Clinical and organizational psychologists are experts on human thinking, feeling, behaving, and collaborating. As the Web becomes more connected to individuals and groups of people, psychologists need to play an integral role in facilitating this connection. The boundaries between the real world and the Internet continue to fade. Psychologists, as human experts, need to be involved in shaping this new context.

Chris Anderson (2006), the editor of *Wired* magazine, highlighted another key Web 2.0 driver: the long tail. In his innovative book *The Long Tail*, he argued that the age of the blockbuster is coming to an end; the future is in very small niches that make up the long tail of consumer experience. The Web enables people to easily purchase unique items (such as Korean War memorabilia) that cannot easily be found, join specific discussion groups (say, the Huntington's Disease Support Group for Massachusetts), and listen to music that is difficult to find (perhaps original Bob Marley recordings). Anderson contrasts Blockbuster and Netflix to illustrate his point. Blockbuster is a brick-and-mortar store that holds a limited amount of video inventory. The company has to market-test nearly every spot on its shelves to maximize profit. The result is a narrow band of movie offerings for customers. Netflix, in contrast, offers almost every movie ever made. Individuals can rent the most obscure independent or foreign films with ease. Netflix is a business built on serving the long tail of consumers.

O'Reilly (2006a, 2006b) outlines a couple of other key Web 2.0 components: architecture of participation and peer-to-peer capabilities. *Architecture of participation* refers to the deliberate process of creating applications or services that encourage people to add to them. This can be in the form of commenting on stories, posting on blogs, uploading media, or creating mash-ups (a Web site or online application formed by quickly mixing content from two or more existing sources of Web content, figuratively mashing them together). Psychologists can add much to this discussion. Individual and group motivation is central to this process. Social psychology offers decades of research that can be readily applied to this emerging field.

Harvard Medical School's information technology department defines *peer-to-peer* as "a method of file sharing over a network in which individual computers are linked via the Internet or a private network to share programs/files, often illegally. Users download files directly from other users' computers, rather than from a central server."

The popular and free Internet telephone service Skype is an example of a peer-to-peer program. This service uses the computing power of multiple computers that are linked to the

Internet rather than one central data center to support all different calls. This decentralizing process allows millions of people to make millions of simultaneous calls around the globe for free.

These Web 2.0 concepts, here to stay, will disrupt and reshape many industries, just as they have already significantly changed the newspaper, music, motion picture, real estate, and advertising industries. It is just a matter of time until Web 2.0 significantly affects the different domains of psychology.

Psychologists appear to be far behind the curve with regard to Web-based technology, Web 2.0 technology in particular. The Web is fast becoming an integral part of collective and individual functioning. Broadband penetration, globalization, rising energy costs, and telecommuting are only going to accelerate this trend. Psychologists must understand these concepts and begin to insert themselves into the discussion. Psychologists can bring a tremendous amount of value to the table, and they can play a central role in shaping how organizations and individuals harness the Web. The following sections explore these concepts and illustrate how psychologists can add value by marrying psychology and Web 2.0 technology.

Social Networking

A social network is a web of relationships that connect people to one another. Each individual in the web is a "node," and connections among individuals are conceptualized as "ties." Scientists study social networking to highlight how viruses evolve, information spreads, and capital is disseminated.

Stanley Milgram (1967), an academic psychologist, was the first person to identify and measure social networks. He created a "small world experiment" by mailing letters to 60 people in Wichita, Kansas. The letter indicated that the goal was to get the letter to the wife of a divinity student in Cambridge, Massachusetts. They were to forward the letter to a contact they knew who was as close to the wife of this divinity student as possible. The individual they forwarded the letter to could be in the clergy or live near Cambridge. Milgram's study illustrated that an average of six discrete mailings got the letter to the wife of the divinity student. This study spawned the now popular concept of six degrees of separation. Now, there is even a popular game, Six Degrees of Kevin Bacon, in which people try to identify six people who could ultimately connect them to the actor Kevin Bacon.

Computer programmers now create software applications that connect people online—in other words, social networks. Hundreds of millions of people use social networks daily. They use them to connect with family and friends who span the spectrum of their lives—from childhood friends to work colleagues. Social networking software has a number of features beyond simply connecting individuals. People can send messages to one another, share videos, post photos, and play games together. Next steps in social networking software include GPS tracking and augmented reality. Members will be able to see where their contacts are in the real world and also be able to engage in games that blur the boundaries between the physical and virtual worlds.

There are now more than 200 online social networks. Many have peaked and are now in decline (Friendster and MySpace, for example), whereas others are exploding in popularity. Facebook, the latest and strongest evolution of the Web-based social network, dwarfs the earlier networks and has much more functionality and a much richer user

experience than the others. It remains to be seen if Facebook's growth will continue, or if it too, like its progenitors, will slowly dwindle and decrease in relevance.

Psychology Value-Add

Psychologists can bring value to the social networking industry in a number of ways. Of particular interest to advertising and consumer psychology is the recent experience of Facebook's Beacon program, a news feed that constantly streams reports of friends' activities to other friends in the user's network. For example, it might report that I am posting on my blog, commenting on another person's post, or uploading a photo. Friends can then track exactly what I am doing on the site. This feature was initially greeted with uproar but soon became one of the most sought-after features. Facebook decided to build on this news feed process by partnering with other sites, such as Blockbuster, by including in those news feeds items that an individual purchased or rented. In keeping with the example, my news feed might say that I blogged on a topic, rented *Elling* from Blockbuster Online, and listened to a new song.

This was a controversial move by Facebook and angered a significant amount of its user base. Users were comfortable letting other people know what they did on Facebook, but they were not comfortable sharing what they purchased outside Facebook. Consequently Facebook allowed people to opt out of the service. This solution did not satisfy users, so now individuals have to opt in to use the service.

This example is particularly interesting because it illustrates the challenges that social networking sites face when trying to monetize their platforms. Most sites use traditional Web-based advertising. This is a less-than-optimal way to generate revenue, but online advertising could, and needs to, grow significantly for these companies to be successful. At this point, these sites know more about the individual consumer than any other company has at any other time in history. People discuss their most personal issues on these sites; they link to friends, outline their underlying social graph or network, and disclose detailed information in their personal profiles. The race is to look at all of this information and come up with compelling ways to use it to match products or services with individuals' implicit and explicit interests. This subtle process has not yet been accomplished. Psychologists can play a key role in researching, testing, and creating ways for social networks to best meet the needs of their users.

Psychologists can also add value by studying how community develops online. Heidi Campbell (2005) has done some intriguing qualitative research that explores how religious communities operate in an online setting. This type of research could easily be generalized to different industries, such as consulting groups, people groups (e.g., people who are disabled), and organizations, to find ways to maximize the strategic advantages of using an online setting to reach goals and objectives.

User-Generated Content

User-generated content comprises posts, comments, and, typically, media (videos, MP3s) created by an individual that is then shared, at no cost, with other people on the Web. More specifically, the Organization for Economic Cooperation and Development (2007), comprising 30 countries that value democracy and free-market principles, defines *user-generated content* (UGC) in this way:

1. Publication requirement: While UGC could be made by a user and never published online or elsewhere, we focus here on the work that is published in some context, be it on a publicly accessible website or on a page on a social networking site only accessible to a select group of people (eg, fellow university students). This is a useful way to exclude email, two-way instant messages and the like.
2. Creative effort: This implies that a certain amount of creative effort was put into creating the work or adapting existing works to construct a new one; i.e. users must add their own value to the work. The creative effort behind UGC often also has a collaborative element to it, as is the case with websites which users can edit collaboratively. For example, merely copying a portion of a television show and posting it to an online video website (an activity frequently seen on the UGC sites) would not be considered UGC. If a user uploads his or her photographs, however, expresses his/her thoughts in a blog, or creates a new music video, this could be considered UGC. Yet the minimum amount of creative effort is hard to define and depends on the context.
3. Creation outside of professional routines and practices: User generated content is generally created outside of professional routines and practices. It often does not have an institutional or a commercial market context. In extreme cases, UGC may be produced by non-professionals without the expectation of profit or remuneration. Motivating factors include: connecting with peers, achieving a certain level of fame, notoriety, or prestige, and the desire to express oneself. (p. 8)

User-generated site examples include YouTube and Google Videos; both feature videos created and uploaded by amateur users. These sites have search functionality and allow users to comment on and rate the videos, much like people rate books on Amazon.com, another stellar example of user-generated content. Amazon has people rate and post reviews of products. This started with books but is now available for everything from baby strollers to refrigerators. The code that allows people to do this is simple and inexpensive to implement. However, the value it generates by tapping into information that people freely offer is enormous. This is user-generated content at its finest. It falls into the background and provides seamless meaning for users. This is sometimes referred to as the *semantic Web.*

Psychology Value-Add

Psychologists can play a pivotal role in helping individuals and organizations create and consume user-generated media by creating video tutorials, providing guidelines for assessing the risks and rewards for publishing user-generated media, and helping businesses align and empower users to increase brand alliance and equity.

As clinical psychology becomes more democratized and moves further from the individual offices of providers to the Web, psychologists can play a critical role by steering the development of psychoeducational resources that help inform consumers. Clinical, organizational, and social psychologists have dramatically underused the vast

advantages of the Web. There are potentially several disorders that do not require intensive therapy and may be beneficially treated using video protocols streamed through the Web and tied to communities of users working through the same issues. Research could be conducted to see whether treatment in this medium is safe, ethical, and beneficial. For example, individuals struggling with panic disorder could "attend" 10 sessions with a clinician who is working through a protocol with a client with whom most individuals suffering from panic disorder could identify. This video could be supplemented with forms completed online. Individuals could watch the video, fill out the material online, and then take assessments that track their symptoms.

This prospect of Web-based treatment is understandably unsettling to clinical psychologists for a variety of ethical, safety, and financial reasons. The purpose of this article is not to explore these areas but simply to highlight where the trends are going and motivate psychologists to get out in front of these issues so that they can define and drive the discussion rather than get defined and driven out of the discussion. Online protocols to help individuals struggling with a variety of disorders are not a question of if they will happen but a question of when they will. Psychologists need to be thinking about these issues and working through them before they are addressed by a neighboring guild or other industry that does not have client welfare in mind.

Another value might be to help younger people and other users better assess the risks and rewards that come with publishing content online. Many young people are naive about what they post. They imagine that the material will be consumed by a small group of friends and do not realize that the Web is truly worldwide and that the information posted can be seen by millions of people whom they never intended to view it. Similarly, guidelines can also be drafted for the use of user-generated content. Many individuals can develop a platform that can greatly help their career and educational prospects by creating a blog or e-portfolio. Psychologists can research examples of how this is done successfully to help others achieve the same results.

A third value, and one likely most interesting to advertising and consumer psychologists, is how companies can leverage user-generated content to help build organizational loyalty and brand awareness. Emanuel Rosen (2002) wrote one of the most comprehensive early books on this subject, *The Anatomy of Buzz: How to Create Word-of-Mouth Marketing*. Amazon has created a tremendous amount of value by doing this very thing by pioneering customer reviews.

Rosen (2002) talks about how BMW motorcycles performed an experiment with online forums. BMW initially allowed users free rein in its forums, but then started editing some accounts that were unkind to the brand. Users fought this censorship, and BMW stopped editing them. Consequently, users felt more empowered and have done a tremendous job of supporting one another by planning motorcycle trips and helping each other solve mechanical difficulties. This has increased the value of BMW and also made its customers more loyal to and involved with the company.

A big part of advertising has to do with creating impressions in customers' minds. Social psychology tells us that simple, repeated exposure can help consumers feel more positive about a particular brand (Rindfleisch & Inman, 1998). These

impressions are often costly and come in the form of print, radio, television, and Web-based ads. BMW, by creating user-generated forums, has created millions of impressions each time its users log in to its communities. Moreover, BMW's clients are intrinsically driven to do this. They want to participate. They are not coaxed, but are active champions of the company.

Psychologists can implement and study these organic developments and better help companies implement user-generated communities and media that support their organizations. Indeed, some companies already use the prosumer (producer + consumer) trend to create user-driven advertisements. This dynamic is better explored in the context of crowdsourcing.

Crowdsourcing

Crowdsourcing, like outsourcing, harnesses individuals and groups on the Web to accomplish work-related tasks. Jeff Howe (2006) coined the term in a *Wired* article: "Simply defined, crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively), but is also undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers." (p. 76). The concept is similar to using the public to search for a missing person. Instead of searching for a kidnapped child by broadcasting an alert only to law enforcement officers, some larger cities and whole states saturate the media and the Web with requests for the public to help locate the child.

Companies like Procter & Gamble have been experimenting with crowdsourcing and now generate much of their revenue and innovations from nonemployee individuals (Libert & Spector, 2007). Organizations can now post work on company Web sites, and individuals not affiliated with the company can spend their downtime completing the tasks. They are sometimes compensated for this (Amazon's Mechanical Turk service, for example), and they sometimes do this work without a fee.

Several organizations, such as Cambrian House and Kluster, help match jobs with people. Most of these models list job specifications and payment for a company. Individuals then bid on the job. This basic setup is used for complicated projects like biological and genetic research (at InnoCentive, for example) and for simple jobs like logo design (at IdeaBlog and CrowdSpirit, for example). This can be a potential boon for businesses as it allows them to outsource work without having to cover traditional employee costs. Some have suggested that it is just a cheap way for companies to exploit workers; however, Lakhani, Jeppesen, Lohse, and Panetta (2007) have shown that individuals benefit and are motivated by the desire to acquire new skills and the desire to learn.

Other interesting models provide a platform for users to express themselves and then share the profits with the creator. Brabham (2008) discusses the T-shirt designing firm Threadless, which allows users to submit designs. The public then votes on those designs, and the top designs are printed and sold. Brabham also discusses iStockphoto, which allows photographers to upload their photos and sell them to the general public. Stock imagery is often expensive, and iStockphoto is affordable. These businesses have, of course, disrupted some people's livelihood (professional photographers,

for one), but they also have greatly decreased the overall price of goods and allowed millions to express themselves creatively and supplement their income.

Psychology Value-Add

Psychologists can bring value to the crowdsourcing arena by drawing on practices that are central to industrial organizational (I/O) psychology and career counseling. Regarding I/O psychology, psychologists could help companies better define skill sets and personality characteristics that they feel would be a good match for their potential workers. Once these criteria were identified, psychologists could then automate these assessments so that workers would self-select and self-screen based on their underlying skill set and personality characteristics match. In addition, psychologists could help firms identify specific criteria for jobs. Many companies offer only vague information or information that can easily be misinterpreted. Psychologists can help organizations be more discrete, concrete, and measurable in their needs, so they can better find people to help them reach their goals.

Psychologists can also assist workers. Crowdsourcing provides an excellent opportunity for an individual to "try on" a job to see if he or she likes it. The individual can perform small tasks to see if he or she has an intrinsic interest and some capability in the work domain. This can build on what has already been done in the career-counseling field. For example, an individual might take a career assessment; identify his or her strengths, weaknesses, and career interests; and then "try on" that work area by doing a task or two in that field. This would provide the individual with an experiential understanding of whether he or she would be a good fit in that field. It would also help such individuals determine whether they should invest in an education in that area or choose another area.

Web 2.0 Technology and Psychology Case Examples

Web 2.0 permeates the popular culture, workplace, and home. The technology is changing not only how people do things but also what people do. Web 2.0's ubiquitous presence has already begun to affect psychologists and educators, as well as the fields of psychology and education. These examples illustrate these impacts.

Missionary Outreach Support Services

Psychologists can create specific Web 2.0 services and programs to help organizations reach their goals. Missionary Outreach Support Services (MOSS) is an example of an organization with few resources that has used Web 2.0 technologies to extend its reach. First, it provides forums and discussion boards through the WordPress platform to promote social networks and user-generated content. It also uses a referral wiki (a software program that allows anyone to enter and edit information—Wikipedia, for example). The MOSS referral wiki is an online tool that allows missionaries to provide contact information (name, street address, Web address, and other relevant information) for health care providers around the world. This information is linked to Google Maps so that an individual can search for a provider's information and find directions to his or her office.

It would cost MOSS tens of thousands of dollars and hundreds of hours of time to compile this same information. The referral wiki not only conserves organizational resources but also creates community buy-in by empowering users. This

saves money and increases loyalty to the community. Finally, MOSS provides a member library—a feature that allows individuals to upload and download content. MOSS is currently working with agencies and conferences so that all of their content can be uploaded to the member library. In addition, MOSS provides tags and a search function so that a person can associate keywords with a file he or she uploads. This allows others to search for keywords and find the associated document. For example, I might upload a document on adjusting to a cross-cultural environment. I can then "tag" that document with keywords such as "stress," "adjustment to a new culture," "cross culture," and "new language." A person can then enter those words in the search and find the document.

MOSS continues to evolve. It averages between 150 and 200 unique visitors a month. Each visitor stays on the site for an average 1 minute 57 seconds. The referral wiki now has contact information for 16 health care providers from countries across the globe, spanning from Osu-Accra in West Africa to California. The member library continues to grow and now has 39 documents ready for reuse and sharing. In addition, and more important, MOSS has plugged into an established mental health and missions community. This has resulted in the founding of two more social networks. These networks create a reciprocal loop in which users visit MOSS and the social networks and invite others to view these sites as well.

NIXTY

NIXTY is a Web 2.0 educational platform with the mission of empowering education for everyone (full disclosure: I am the CEO of NIXTY). NIXTY provides free and premium e-portfolios, courses, continuing education suites (the ability to provide continuing education units), and learning management systems such as Blackboard. In brief, it was created to solve the educational crisis. The estimated global teacher-to-student ratio is 1:300—that is, one teacher for every 300 students. John Seeley-Brown and Richard Adler (2008) quote Sir John Daniel who states it this way: "More than one-third of the world's population is under 20. There are over 30 million people today qualified to enter a university who have no place to go. During the next decade, this 30 million will grow to 100 million. To meet this staggering demand, a major university needs to be created each week" (p. 16).

As a global community, we are clearly unprepared to face this challenge. The resources required to build campuses and fund faculty and research positions are incredibly high and impossible to finance. We can solve this issue through harnessing Web 2.0 applications that amplify the efforts of academic institutions, magnify the voices of educators, and facilitate peer-to-peer learning.

The faculty at the Massachusetts Institute of Technology started the open-educational wave that is reshaping how we look at global education. It decided to publish 1,800 of its courses (OpenCourseWare), so that anyone, anywhere, and at any time can access and work through these courses. Harvard followed suit with Open Access—free access to scholarly, peer-reviewed journal articles. Now more than 150 universities contribute to the OpenCourseWare Consortium. And in the coming years, with the Google Android cell platform and UNESCO's efforts at accreditation, it is now feasible to think that millions of people will be able to get a world-class education for free through their smartphone. This kind of prediction would have seemed ridiculous just a few years ago, but now seems likely to happen in the next four to six years.

NIXTY is designed to play a key role in integrating and harnessing these developments to facilitate the mission of empowering education for everyone. NIXTY does this through social networking, user-generated content, and crowdsourcing. First, a social network links people's e-portfolios together. Students and instructors can find one another by searching for similar interest areas and geographical locations. In addition, there are separate learning networks, or learning management systems (LMS), that anyone can launch. This enables any person or institution to launch a full-blown LMS or course management system (CMS). In addition, popular OpenCourseWare, like MIT's courses, are populated in the social learning network, so people can work through the courses on their own or create study groups and work through them with others. Second, user-generated content is used through a central marketplace. OpenCourseWare provides an adequate foundation for learning information, but more is going to be needed to reach the long tail of students. Anyone can upload course material (quizzes, tests, slide shows, videos, MP3s) into the central repository/marketplace. Other users can then rate and review the course materials. Third, NIXTY is crowdsourcing the mission of empowering education for everyone. Users (students, educators, and institutions) are encouraged to think and own that mission. Students can support others and tutor students who are weak in certain areas. Educators can share their materials and offer expertise or consultation. And institutions can use the platform and financially support other institutions that cannot afford an LMS. Crowdsourcing will also be used to translate the platform into multiple languages.

Psychology has played a central role in NIXTY's development. Core parts of psychology, such as relationship development, motivation, goal orientation, self-efficacy, and incentives, are integral to the service. NIXTY matches people according to interests so that they can connect with others in a meaningful way. Individuals can specify quantifiable goals to help them track their progress. Other people offer encouragement and cheer people on to accomplish their goals. Incentives also play a role. NIXTY is free—which is a huge incentive. Other incentives, like virtual goods, are also part of the service.

Conclusion

Web 2.0 is here to stay. The democratizing power of the Web has disrupted industry after industry. Psychology, in all its different domains, seems to have largely avoided this fate—for now. Psychologists have an opportunity to frame this discussion and play an active role in how these technologies will be implemented in the different domains of psychology and other industries. Psychologists have unique value they can bring to individuals and organizations to better harness social networking, user-generated content, and crowdsourcing.

Will psychologists answer the call and get involved in the human-Web network that is quickly becoming reality for most people? One could look at clinical and organizational psychology's past to divine this answer. Regardless of our past experience, it is clear that if there is a group of people who can become self-aware, adjust, and thrive in this changing context, then that group of people should be psychologists. ◆

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