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Learning 2.0: Who's in Control Now?

Wendy Shapiro and Lev Gonick | Case Western Reserve University

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The internet has the potential to be the single most important and profound enabler of global culture and education. By understanding the behavior of the Net Generation and using Web 2.0 technologies, powerful new designs for education and Learning 2.0 can be developed. There is an opportunity for education to become more innovative, interactive, and engaging, building on the freedom and flexibility of contemporary information technologies. New possibilities for learning – increased collaboration, visualizing and understanding large quantities of data, creatively expressing meaning through storytelling, discovering meaning through mashups, constructing ideas in a social web, and blurring the boundaries between the virtual and the real – are unfolding as Web 2.0 technologies make a more relevant learning experience possible for students and place at their disposal the power to connect their academic experiences to the participatory culture that surrounds them.

Introduction



Forty years ago we were awe inspired when the very first pictures of planet earth were sent back to NASA giving us a view of the whole earth from the view of the stars/heavens looking down on us.

Four decades later we view the earth like this ... a global image of internet connectivity.

In the less than twenty years since its birth, more than one billion people around the globe are using the Internet on standard computers. Another two billion users have mobile Internet browsing and message services on their cell phones, including more than five hundred million in China alone. The internet has the potential to be the single most important and profound enabler of global culture and education.



Who are we educating?

Data gathered by Annenberg's Center for the Digital Future, a global study published by New Paradigm, and Anthony Williams, co-author of *Wikinomics*, help to define the characteristics of the NetGen student. A sketch of the Net Generation begins to emerge as we note that Net Generation students:

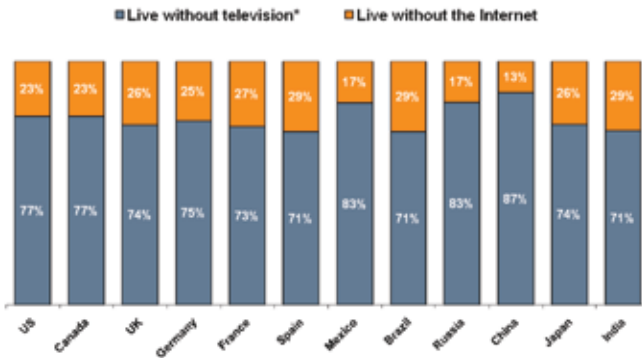
- will never read a newspaper but are attracted to some magazines.
- will never own a land-line phone (and maybe not a watch).
- will not watch television on someone else's schedule much longer.
- trust unknown peers more than experts.
- are, for the first time (2005), willing to pay for digital content. Never before.
- have little interest in the source of information and prefer most information aggregated.
- place the community at the center of Internet experience.
- think themselves uninterested in advertising and unaffected by brand (but they are wrong).
- expect that everything will move to mobile.
- are less interested in television than any generation before.
- want to move content freely from platform to platform with no restrictions.

- want to be heard (user-generated content).
- use instant messaging, and think e-mail is for their parents.

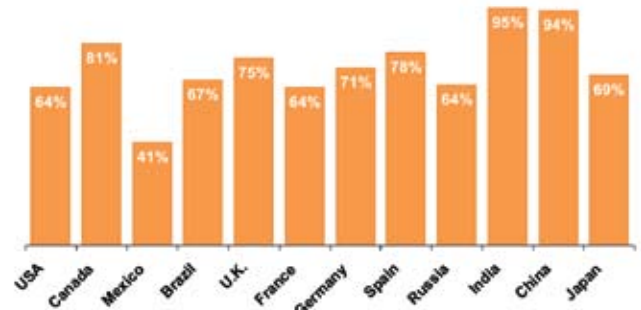
– 2007 Digital Future Report from the USC Annenberg School's Center for the Digital Future

The N-Gen Wants the Internet

Which would you rather do?



% Regularly Add or Change Things Online



*Significantly higher than for Xers/Boomers

Source: 2007 New Paradigm Global Study

Different trends are emerging in this era of computing and communications. The web has evolved from a medium for publishing information to a medium for building massive online communities around all conceivable spheres of interest. The web has become the infrastructure for business collaboration and increasing collaboration technologies are driving significant changes in other institutions like government and education.

The blogosphere is a good example. It has never been as easy as it is today for ordinary individuals to express themselves and share their thoughts with the world. In June 2005, there were ten million people blogging. We thought that number was pretty astounding. Today over seventy million people are giving a running commentary on everything from technology to celebrity gossip, and 120,000 new blogs are created every day! Much of that growth is in China.

MTV once ruled in the broadcast age, but not anymore. It is not too difficult to predict the future of music. How long will it be before the reach of MySpace exceeds the reach of MTV's broadcast channels?

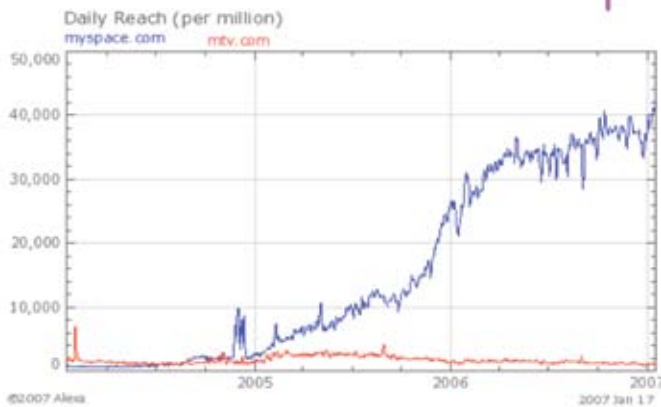
The Power of Collaborative Communities

Anthony Williams, *Wikinomics and the Future of Education*

Myspace.com beat MTV.com



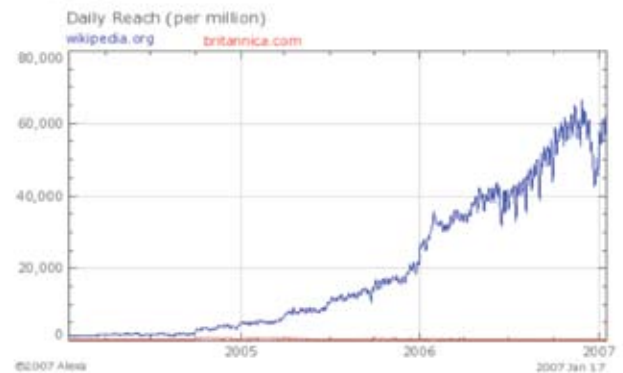
vs.



Wikipedia.org beats Britannica.com



vs.



In parallel with other trends, Wikipedia has been rising to prominence. This is a free repository of human knowledge that anybody can edit. Today Wikipedia has 1.8 million English language articles, 75,000 contributors, and 1 million editors who make tens of thousands of updates every day. Wikipedia is now the ninth largest site on the Web and is nearly 10-15 times larger than the *Encyclopaedia Britannica* – its closest rival.

Back to Learning 2.0 and Who's in Control Now

Using Web 2.0 technologies and understanding the nature of behavior of NetGeners enables powerful designs for education and Learning 2.0.



Welcome to Learning 2.0 - Movie

http://www.youtube.com/watch?v=2r4_bnCdWnM

We are beginning to see instructional strategies used in creative ways that engage students in their own learning; strategies such as situated and immersive learning, problem-based learning, virtual simulation, and community-based learning add new levels of meaning and relevancy to learning. Along with authentic learning, we're seeing more authentic assessment. Students are able to evaluate their own progress, have freedom to make mistakes, and can adjust their course.

In 1987, Chickering and Gamson published an article entitled *Seven Principles of Good Practice in Undergraduate Education*. In this article, important education strategies were outlined which set the stage for a new paradigm of participatory learning. The seven principles included the need for more faculty-student contact, the need to engage students in active learning, the understanding that students can learn from each other, the realization that time spent on task is critical, the idea that feedback needs to be prompt and immediate, the need to set educational expectations to a high standard, and the importance for students and teachers to respect the diverse talents and ways of learning.

Chickering and Gamson have laid an important foundation upon which we continue to grow. Now, more than 20 years after the publication of their article, we find ourselves in a world where innovation, social networking, and change are an everyday occurrence – and we are all contributors. There is a greater blending of technology and learning. A freedom and flexibility has been opened through Web 2.0 technologies. New levels and layers of dialog are possible. Educators are becoming more innovative, interactive and inclusive.

The freedom and flexibility of contemporary information technologies has opened dialogs and afforded education the opportunity to become more innovative, interactive and engaging. Today we live in a world enabled by technology that allows us to freely contribute and distribute our thoughts, ideas, skills, projects and products. There is a transparency to learning where both the process and contributors are visible. Students are becoming involved with authentic data sets, solving messy, complex, real-life problems, and discovering ways to see their data that wasn't possible in the past. The social dynamic of learning 2.0 is creating a shift from "access to information" to "access to people."



Web 1.0 vs. Web 2.0 - Movie

<http://www.youtube.com/watch?v=INZ933g-hm0>

Contemporary Thoughts on Learning *Selected from Chickering and Gamson*



Faculty Student Contact



Student Peer Learning



Prompt Response



Active Learning



Time on Task



Communicating High Expectations

In the era of Learning 2.0 there is a promise of new possibilities in learning; increased collaboration, visualizing and understanding large quantities of data, creatively expressing meaning through storytelling, discovering meaning through mashups, constructing ideas in a social web, and blurring the boundaries between the virtual and the real.

New Possibilities for Learning



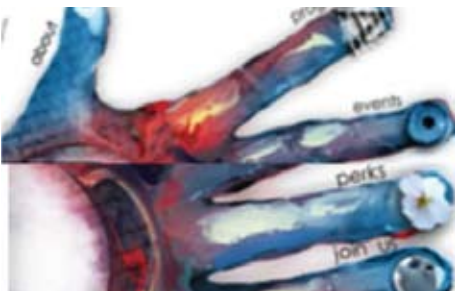
Creative Expression



Blending Virtual with Real



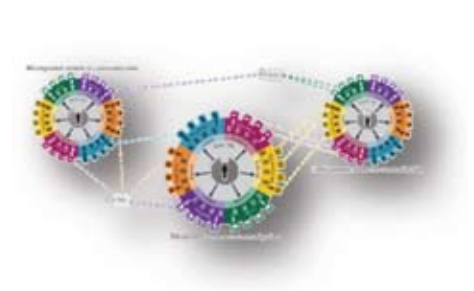
**Collaborative Learning
Collaborative Workspaces**



Mashups & Metaphors



Visualization & Interpretation



Social Construction of Ideas

Learning 2.0 is enabled with Web 2.0 technologies. Examples of each of the New Possibilities for Learning are outlined below.



Creative Expression

Passing knowledge from one generation to the next is a fundamental purpose for formalizing education. Unfortunately there are many instances in which education becomes more stifling than illuminating. It has been shown that greater depths of understanding and ownership are achieved when students are given freedom to construct meaning from information and ideas. The process takes on increased relevancy as students collaborate and work with peers and experts locally and globally.

An example of this type of learning experience is digital storytelling. Storytelling is a powerful tool to communicate and share experiences, explore meaning, and help students connect to one another. Storytelling bridges age, race, gender, and culture. It creates ways to share experiences and express individual voices. The tools for crafting stories include written text, narration, and multimedia presentation. In each of these venues students explore ways in which sights, sounds, and language can be used to create meaning. In a course conducted at Case Western Reserve University students learned to tell their own story, created collaborative stories, and learned to listen.

The basic element of the digital storytelling class included:

- Writing a personal and meaningful narrative
- Transforming and recording an audio narrative of the story
- Gathering and editing multimedia elements of the story
- Imagining, creating and producing a digital story using Adobe Premiere

The culminating event of the course required students, in avatar form, to present their virtual stories to an invited audience in Second Life on the ClevelandPlus Island. A short video was created of the students in Second Life presenting their stories.



Digital Storytelling in Second Life – Movie
<http://www.youtube.com/watch?v=U1hIS3kNrmI>



Blending Virtual with Real

Virtual worlds like Second Life provide educators a dynamic landscape for innovative learning; opportunities for exploration, experimentation, research, teaching and creative expression. At Case this is happening at both the undergraduate and graduate levels. In the realm of medical and health education, professional schools are looking at ways virtual realities can support education. There is an keen interest in ways virtual worlds can support, extend and/or replace the use of “standardized patients.” Standardized patients are actors who have been trained to accurately portray the role of a patient with a specific medical condition.

These actors simulate the doctor-patient experience, allowing medical students to practice and test their skills. Medical and dental education programs are exploring ways in which virtual worlds can support the experience. Studies have begun to test the viability of using virtual reality as an environment to reproduce or simulate the standardized patient experience. In the virtual setting of Second Life experts take the role of patients while students communicate and interact as “doctor” avatars. All interactions have been or will be recorded using machinima and with cameras focused on the real students. In addition, motivation and perception research instruments have been or will be administered. The findings thus far indicate that there is no significant difference in learning when comparing the real standardized patient experience with the virtual encounter.



Blending the virtual and the real – Movie
<http://www.youtube.com/watch?v=R3WLJq5BucM>

An article from *Case Daily* outlines the study being conducted at the Case Western Reserve University Dental School:

The research project focuses on developing scenarios that aid and test students in taking patient histories, providing oral health education like tobacco cessation counseling for smokers, explaining procedures, talking about healthcare options and obtaining informed consent, and working through situations that present ethical dilemmas. These are among the competencies outlined by the American Dental Education Association. <http://blog.case.edu/case-news/2008/07/28/virtualdentistry>



Collaborative Learning - Collaborative Workspaces

Collaboration is central to Learning 2.0. In collaborative spaces students feel that they need, depend on and value each other for success while directly engaging communicate with each other. Collaborative tools remove some of the temporal and time constraints of traditional learning.

Web 2.0 technologies support collaborative environments where students are able to develop communication skills and teamwork strategies. Successful collaboration develops important interpersonal skills such as the ability to see multiple points of view, the ability to collaborate without sacrificing personal meaning and the ability to put consensus and team efforts above individual preferences. In these spaces educators have the opportunity to put increasing control into the hands and minds of students. Students can become designers of their “worlds.”

Collaborative web 2.0 technologies can be divided into four categories:

- 1 Social collaboration – including wikis, blogs, instant messaging and virtual worlds
- 2 Social networking – including online communities and social network analysis
- 3 Social publishing – including content sharing (video/audio) and social tagging
- 4 Real time collaboration – including Adobe Connect and WebEx conferencing



Mashups & Metaphors

Mashup, a Web 2.0 term, carries several descriptions ranging from a new type of web content to Wikipedia’s definition “a digital media file containing any or all of text, graphics, audio, video, and animation, which recombines and modifies existing digital works to create a derivative work.” To understand the power and potential it is possible to compare a mashup to a metaphor.

There is an interesting parallel between metaphors and mashups. Metaphors such as “the world is a stage” or “you are my sunshine” compare seemingly unrelated subjects thus providing a powerful image to support an idea. Metaphors nurture creativity because they are not accurate. They are open to different interpretations and amplifications. Thought is required to create and understand a metaphor thus bringing new levels of insight.

Like metaphors, mashups bring together information/data from unrelated sources into a single integrated tool. Again, like a metaphor, mashups are a creative way to create new levels of thought and insight allowing for innovative explorations and experimentation. A common example of a mashup is Google maps and Flickr, which produce a personal pictorial travel guide glued to the earth. Just like creating metaphors, creating a useful and meaningful mashup requires thought, consideration and reflection.



Visualization & Interpretation

As a society we have produced more information in the past 25 years than in the previous 2500 years combined. Information overload is a common occurrence in the digital age. In a world of sensory immersion we need to learn to interpret, discriminate, and see patterns in the data and data in the patterns. It is important for students to explore large, authentic data sets through a visual lens. Multiple Web 2.0 tools make possible sophisticated graphing & visual representation of digital information. Authentic and dense information sets are freely available. Students can ask probing questions of census data, geographic data, or climate data as well as their own personal data. For students the process takes a new of form of experiential learning representing elements of research, investigation, reflection and communication.

As Nina Simon states on the *Museums 2.0* blog, “The result [of visual analysis of data] is deeply intoxicating, rich with content, and the meaning seems to emerge artistically from the data itself. . . .Data visualization helps us be intelligent interpreters on our own, instead of asking someone else to design an interpreted experience for us.” <http://museumtwo.blogspot.com/2008/02/data-visualization-honest-powerful.html>



Social Construction of Ideas

A question can be asked, “Where do ideas come from?” or perhaps, “Where do solutions come from?” Answers can be found in the wisdom of crowds. Web 2.0 is providing a platform for an evolving method of collaboratively organizing vast amounts of information through crowd sourcing - in other words, mass collaboration. Education can learn from businesses such as Dell and Starbucks to turn particularly challenging questions back to the consumers – in our case, back to the students – for answers.

Dell, Inc., for example, created an interactive web community open to the public for the purpose of expressing needs and desires related to Dell computing. In Dell’s words, the purpose of the site is to build “an online community that brings all of us closer to the creative side of technology by allowing you to share ideas and collaborate with one another” (see <http://www.dellideastorm.com/>). Starbucks is doing the same by reaching out to its customers asking them to share their ideas, revolutionary or simple, just join in and Share, Vote, Discuss, and See (see <http://mystarbucks.wordpress.com>).

Conclusion

Students, formally known as the class, have taken control of their learning. Web 2.0 makes possible a more relevant learning experience for students to connect their academic experiences to the participatory culture that surrounds them. Social networking technologies are becoming the bridge between formal and informal educational worlds. In the Learning 2.0 era, the portfolio of active learning scenarios and opportunities is nearly boundless.

Where are learning and education headed? Consider the future; consider developing educational environments that promote learning and innovation skills to include creativity, critical thinking, communication and collaboration. Allow for flexibility, innovation, self-direction, social and cross-cultural skills and responsibility. If we are looking to develop leadership, then let the students lead.

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About the Authors



Wendy Shapiro serves as Senior Academic Technology Officer at Case Western Reserve University, providing strategic leadership and direction for campus academic technology applications and initiatives. In this position Dr. Shapiro provides leadership in developing, implementing, and sustaining an assessment program designed to support decision-making, curriculum development and innovation, and teaching effectiveness related to the use of technology in advancing the academic and research mission of the University. In addition, Dr. Shapiro serves as Director of Instructional Technology and Academic Computing and is responsible for the design, implementation and evaluation of innovative and emerging technologies to support academic needs at Case. For over 15 years along with her administrative duties, Dr. Shapiro has been teaching undergraduate and graduate courses in the area of instructional design and technology. Dr. Shapiro is a published author, and has made numerous presentations in the area of academic technology and related topics throughout the United States.



Lev Gonick has been teaching, working, and living on the Net since 1987. He is vice president for information technology services and chief information officer at Case Western Reserve University in Cleveland, Ohio. He is co-chair of the CIO Executive Council's higher education committee. He is also the founder of OneCleveland, now known as OneCommunity, the award-winning project to create a connected community throughout Northeast Ohio through high speed wired and wireless network connectivity. He was the Chair of the 2008 New Media Consortium's Horizon Project providing an annual environmental scan of new technologies and their potential impact on the academy. Additionally, Dr. Gonick previously served as chair of the board of the New Media Consortium. In 2007, he and Case Western Reserve University were recognized with a ComputerWorld Laureate for launching the Cleveland 2.0 project to leverage technology to address community priorities. This included the much referenced launch of Cleveland+ in SecondLife. In 2006, he was recognized by ComputerWorld as a Premier 100 IT leader and honored in the same year by CIO magazine with a CIO 100 Award. He also serves on the board of the National LambdaRail (NLR), the nation's next generation advanced networking research effort. Finally, he currently serves on numerous community Boards including the Museum of Contemporary Art, Cleveland, the Bellefaire JCB for Children, and Lawrence School for Dyslexic and other differently-abled learners.