Bull, G., Thompson, A., Searson, M., Garofalo, J., Park, J., Young, C., & Lee, J (2008). Connecting informal and formal learning: Experiences in the age of participatory media. *Contemporary Issues in Technology and Teacher Education*, *8*(2), 100-107.

Connecting Informal and Formal Learning Experiences in the Age of Participatory Media

Glen Bull
University of Virginia

Ann Thompson
Iowa State University

Mike Searson
Kean University

Joe Garofalo
University of Virginia

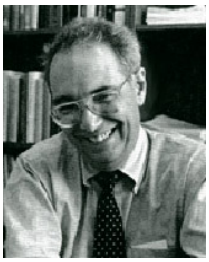
John Park, Carl Young, and John Lee
North Carolina State University

The renaissance stimulated by the World Wide Web is generating multiple formats and channels of communication and creativity. These include blogs, wikis, instant messaging, and texting in the realm of writing, podcasting in audio, countless sites such as Flickr for distribution and sharing of images, and video shared via YouTube and other sites. The Pew Internet and American Life project reports that the majority of all teens are now engaged in active creation of online content. The rise of social media reflects new opportunities and outlets for creativity.

Increased youth engagement through these activities represents a repurposing of what Clay Shirky terms a *cognitive surplus*. Shirky, a professor in the Interactive Telecommunications Program at New York University, believes that a movement from passive activities such as watching television to more active and creative pursuits is emerging as a use of the cognitive surplus in the Web 2.0 era. Collaborative projects such as Wikipedia demonstrate that a previously unexploited collective intelligence can be tapped when the right conditions are established. (See Video 1.)

Video 1. *Clay Shirky introduces the concept of the Cognitive Surplus at the 2008 Web 2.0 Expo.*

Educators are exploring how to take advantage of the cognitive surplus in connection with in-school activities. For example, Richard Sterling, chair of the National Commission on Writing advisory panel, comments on the increasing prevalence of blogs maintained by teens outside school (Audio 1 includes the fuller context of Sterling's statement):



Not all the writing is brilliant, of course, but they are engaged in ideas. One of the things that we are looking at is to see how we can capture that passion and excitement and bring it into the school classroom. (Sterling, 2008)

This increase in creative expression, documented by the Pew Foundation, can be observed across a range of media – audio and video, as well as writing. For example, the Digital Ethnology group at the University of Kansas reports that the majority of video clips posted on YouTube are created by teenagers, and teenage students are typically more avid users of texting services than are their parents. This phenomenon is associated not only with students' abilities to access and enjoy media and online content, but also to create, produce, publish, and maintain it in real time.

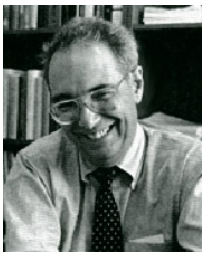
The Web has encouraged content creation through writing and media production. A corollary is that presentation of content on the Web is subtly changing the way people read, process information, and think. Print technology facilitates forms of concentrated and sustained attention and thought. Internet technology facilitates a more distributed and plastic form of thinking. This shift is more than merely a change in the way we read or a change in our behavior.

Challenges in Adapting Web 2.0 Technologies to School Use

Sterling (2008) suggests that the energy and creativity emerging outside schools should be harnessed and linked to the academic enterprise within schools. Capitalizing on these tools for creative expression in schools is more difficult than it might appear. There are numerous constraints in school that present challenges.

1. School content must address specific learning objectives.
2. Many learning objectives are subject to time constraints.
3. Addition of technology can increase the complexity of classroom management.
4. Schools are heavily invested in print technologies and often constrain Internet access in ways that limit access to online media tools.
5. Teachers have limited models for effective integration of media in their teaching.
6. Only limited research is available to guide best practice.

These factors explain why the ubiquitous spread of social media outside school has yet to be employed with equal effectiveness inside schools. Nevertheless, the promise of increased engagement requires that we consider how this might be accomplished (Audio 2)



We are looking to see how we capture that energy and passion in school. Often when they move into school, the energy goes out of it. I think we have to find ways to capture that excitement and get them as engaged in school work as they are outside. (Sterling, 2008)

Students' energy and passion are lost, in part, because of the need to address specific learning objectives in a constrained amount of time. A teen who willingly writes at length in the process of identity formation may be less engaged by school topics. Although some teachers are able to bridge the gap, the added complexity introduced by technology combined with limited amounts of time available in school settings has proven to be a significant barrier to school use of these technologies.

The shift from a student-centered focus to a content-centered focus is an equally important factor. Students who place themselves in front of a microphone or camera to create media enable other users of media to view what they can do. Formal schooling shifts the center of attention to the teacher and to content. While content will always be of primary importance in school, it may possible to engage students in exploration of materials that other students helped create. This might allow a hybrid approach that offers the best of both worlds.

Informal Learning: A Potential Bridge to School Use

Informal learning experiences outside school offer a potential bridge between social media and academic content. The National Science Foundation (NSF) employs the term "informal learning" to describe learning and engagement that occurs outside formal school settings.

Informal learning happens throughout people's lives in a highly personalized manner based on their particular needs, interests, and past experiences. This type of multi-faceted learning is voluntary, self-directed, and often mediated within a social context (Falk, 2001, Dierking et al., 2004); it provides an experiential base and motivation for further activity and subsequent learning. (NSF, 2006, Section I, Introduction)

There are a variety of settings in which informal learning occurs – youth programs, after-school programs, museums, and online communities. These settings offer opportunities to consider ways to link student engagement to academic content without some of the constraints of time and the school curriculum.

Much of this work takes place at the grassroots level, but the NSF has an established grant program (the Informal Science Education program solicitation) to encourage this type of activity outside formal school settings. These settings offer environments in which emergent technologies can be adapted to learning objectives with fewer constraints than formal school settings.

However, relatively little communication takes place between those who work in formal school settings and their counterparts in informal settings. Consequently, lessons learned are not always translated into formats that can be employed within school settings.

Encouraging Dynamic Dialog

The National Technology Leadership Coalition (NTLC), a consortium of a dozen teacher educator associations, was established to encourage dialog across subject area disciplines. In the normal course of events, science education faculty members may not interact with social studies education faculty members. The *CITE Journal*, established through a joint collaboration among teacher educator associations, offers one venue in which dialog across associations can occur.

The National Technology Leadership Summit (NTLS) is another forum established through NTLC to encourage this type of dialog. NTLS is an annual leadership retreat in which representatives from participating teacher education associations meet with the editors of educational technology journals, policy makers, and corporate partners. At the 2007 summit, these representatives considered potential uses of digital video in mathematics, science, language arts, and social studies. (Results and conclusions will be reported in a forthcoming book, *Teaching with Digital Video*, which will be published by the International Society for Technology in Education.)

Clearly, digital video is used much more dynamically in the context of social media outside of school. Video clips are often recontextualized, revised, edited, and reposted, serving as a springboard for conversation. There is limited empirical research on use of video in school, but evidence indicates that at present this type of use in school is more the exception than the rule. The gap between dynamic, interactive uses outside of school and more conventional uses in school offers an opportunity for examination of best practice.

In the forthcoming summit (NTLS X), participants will explore ways in which dynamic media used in informal settings outside school can be adapted for school use. By *dynamic media* we are referring to both technical characteristics – media that is interactive, multilayered, and mobile – as well as cultural characteristics - media that is remixable, sharable, and used as a springboard for social interactions.

Because of the diversity of informal learning settings, there is no single organization that represents these types of uses in the same way that the Association of Mathematics Teacher Educators (for example) represents mathematics educators. However, inclusion of some of the leaders from informal learning settings will provide an opportunity to begin a dialog with teacher educators representing core content areas.

A crucial element of this dialog will be a consideration of how communities of academics value the content of informal learning experiences and visa versa. Formal schooling has long functioned to introduce young people to academic disciplines and the structures of disciplines for creating and validating content. The content valued in school (e. g., Pythagorean theorem, Einstein's Special Theory of Relativity, Huckleberry Finn, the Gettysburg Address) is often powerfully represented outside school in informal settings, particularly in social media. Despite these connections, academics sometimes view the technologies of informal learning as flimsy. Wikipedia is one example of the tension that exists between academic communities and informal learning communities. Dialog might lead to recognition on both sides that there is value to multiple forms of knowledge when that knowledge is considered in critical ways.

Digital video offers an excellent context for understanding the complexities of integrating informal and formal learning. The video media (digital and analog) favored in formal learning environments is typically well produced, often didactic, and almost always reflective of some content that has been agreed upon as important by educators and academicians. Informal video media is more often created in an anything-goes environment that favors low production, simplicity, superficiality, and entertainment. Finding ways that the qualities of both formal and informal media learning contexts can be harnessed in school is a challenge that educators should make a priority.

Linking Informal to Formal Learning

In order to translate informal use of communication technologies outside school into applied activities inside school, educators must consider content and the pedagogies best suited for bridging these in- and out-of-school uses of technology. Schools of education provide a natural entry point for considering possible approaches for accomplishing this.

The current generation of students entering college, sometimes termed Generation Y (Gen-Y), is the first to have lived their entire lives immersed in digital technologies. Almost all of the current Gen-Y students have computers and cell phones. They use communication technologies (instant messaging and texting) and social media (blogs, Facebook, etc.) extensively. Prenksy (2001) coined the term "digital natives" to describe this generation of students who are all "'native speakers' of the digital language of computers, video games and the Internet" (p. 1).

As Pam Moran, superintendent of Virginia's Albemarle County Public Schools, watched this year's high school graduation ceremonies, she reflected on the tangible differences in the current generation of Gen-Y graduates:

How different this current crop seems from even those of five years ago .... Catching the flash of digital flip cameras and quick-fingered movements sending text messages and videos on the fly, I wonder who is on the receiving end of these graduation words, stories and images. In truth, for today's graduates the world serves as their audience while we educators watch from our seats on stage. From *Facebook* to *YouTube* to *Flickr*, they are directing, producing and starring in a real-time documentary of how our times are changing. (Moran, 2008)

Gen-Y teacher education students who are developing pedagogical and content knowledge can serve as collaborators in determining methods for adapting emergent social media and communications technologies to classroom use.

This provides an opportunity for faculty members – typically "digital immigrants" (Prensky, 2001) with extensive content and pedagogical expertise – to work with teacher education students who are digital natives (Figure 1). (Ann Thompson has developed and written extensively about programs in which this type of student expertise can be joined with faculty members' knowledge; see, e.g., Thompson, Chuang, & Sahin, 2006.) As teacher education students graduate and enter schools, they will bring knowledge and understanding of ways in which technology, pedagogy, and content knowledge can be combined. This will only occur if teacher education faculty members serve as effective mentors.

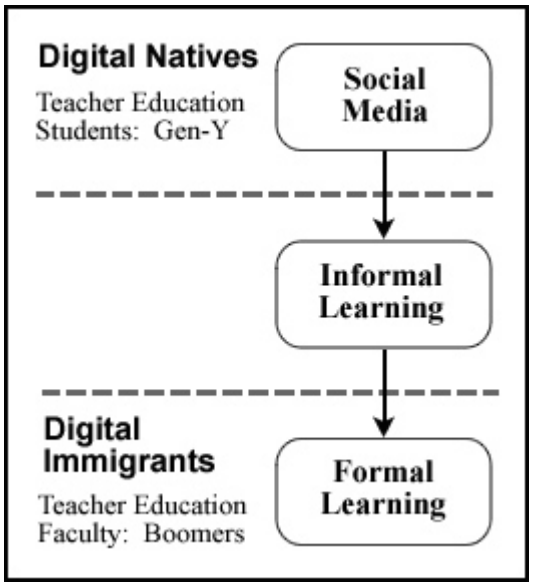


Figure 1. *Teacher education faculty possess expertise in content and pedagogy, while many teacher education students are experienced in use of social media.*

Gen-Y teacher education students' uses of social media are often embedded in pop culture sensibilities that may not translate easily to academic contexts. Instead of rejecting these sensibilities, teacher educators must help their students transform their understandings and values regarding the content and processes used to create content. Thus, a crucial element of this partnership is the development of a critical consciousness and critical media literacy on the part of students about new and emerging technologies, social media, and communications technologies and how they can best be utilized to teach or support the teaching of content.

Again, digital video provides a good context for exploring how these relationships and interactions might play out. Gen-Y teacher education students are likely to understand and use video as a medium for informally expressing ideas in much the same way as we might informally use oral or written language. Transforming these uses will involve teacher educators helping Gen-Y students apply more rigorous structures such as digital storytelling and multigenre writing to their media use.

Summary

Social media are changing the world in ways not yet understood. The effects are rippling through news, business, entertainment, and the political arena. A new generation of students is significantly more active in the way that they create and interact with one another.

One effect on schools and schooling is apparent. The next generation will live in a world that is very different from the previous generation. The current generation of educators is not well equipped to serve as guides in this process – we are all learning together as new media technologies emerge. In fact, teens are often more experienced in use of these technologies than other demographic groups.

The informal learning that occurs in the context of participatory media offers significant opportunities for increased student engagement in formal learning settings. The experience with communication technologies that teenagers today possess must be tapped by educators and connected to pedagogy and content, however, in order to address learning objectives in schools. Teacher education faculty members are experienced in this arena. We are currently at a moment in time in which the current and next generation of educators each can make a genuine contribution by working together.

References

Lenhart, A., Arafeh, S., Smith, A & Rankin, A. 2008. *Writing, technology, and teens*. Retrieved from the Pew Internet & American Life Project Web site: http://www.pewinternet.org/pdfs/PIP_Writing_Report_FINAL3.pdf

Moran, P. (2008). *The learning times they are a-changin*. Retrieved from the Viewpoints section of the SchoolNet.com Web site: www.schoolnet.com/Viewpoints08/Customized%20Leadership/Pages/ViewpointPost.aspx?PostID=3&Paged=True&Page=1#0

National Science Foundation. (2006). *Informal science education program solicitation* (NSF 06-520). Retrieved from www.nsf.gov/pubs/2006/nsf06520/nsf06520.htm

Prensky, M. (2001, October). Digital natives, digital immigrants. *On the Horizon*, *9*(5). Available from http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf

Sterling, R. (2008, April 29). Writing, technology, and teenagers. *Kojo Nnamdi Show*. Retrieved from the WAMU Public Radio Web site: http://wamu.org/programs/kn/08/04/29.php

Thompson, A., Chuang, H., & Sahin, I.(Eds). (2006). *Faculty mentoring: The power of students in developing expertise.* Greenwich, CT: Information Age Press.

Author Info

Glen Bull
Society for Information Technology and Teacher Education
University of Virginia
gbull@virginia.edu

Ann Thompson
Society for Information Technology and Teacher Education
Iowa State University
eat@iastate.edu

Mike Searson
Society for Information Technology and Teacher Education
Keane University
msearson@cougar.kean.edu

Joe Garofalo
Association of Mathematics Teacher Educators
University of Virginia
jg2e@virginia.edu

John Park
Assocation for Science Teacher Education
North Carolina State University
park@ncsu.edu

Carl Young
National Council of Teachers of English Conference on English Education
North Carolina State University
carl_young@ncsu.edu

John Lee
National Council for the Social Studies College and University Faculty Assembly
North Carolina State University
john_lee@ncsu.edu