**Chapter 9** – ***The Technological Age of Teaching***

Michelle Pulaski Behling, PhD, Assistant Professor, Media and Communication Arts

Pace University, Pleasantville, NY

Beth Gordon Klingner, PhD, Assistant Dean for Instructional Technology and Adjunct Instructor, Dyson College of Arts and Sciences, Pace University, Pleasantville, NY

**Key Terms**

1. Blended Learning
2. Digital Native/Digital Immigrant
3. Information Literacy
4. Course Management Systems

4. Web 2.0

 5. Social Networking

6. Rubrics

7. Eportfolios

**Reflective Questions**

Given the latest Web 2.0 tools available, which tools could be readily incorporated into the classroom and what will this technology allow students to do or achieve? What types of projects could instructors incorporate in their courses to blend new technologies with traditional face-to- face learning? How might instructors teach students to be critical evaluators of the information they find online?

**Introduction and Theoretical Basis**

This chapter will discuss the role of instructors in helping students become critical thinkers and users of many forms of media. Students come to college with many computer and technological skills but might not have the ability to apply these skills for deeper thinking and learning in their chosen disciplines. Through the use of Web 2.0 tools such as online social networking and YouTube, course management systems, and e-portfolios, students and their instructors can balance the professional standards, accreditation requirements, and mandated learning environments of many programs. It is assumed instructors will take various student learning styles into account as noted in previous chapters.

When incorporating technology into the teaching and learning experience, instructors can make use of the blended learning approach. **Blended learning** effectively engages students in the learning process by providing them with highly interactive learning experiences that result in the resolution of an issue or problem (Garrison & Vaughn, 2008). Blended learning combines traditional face to face teaching styles with any number of online instructional methods including course management software and social networking. In an effort to tap into the online skill set students already possess, instructors can use blended learning techniques to encourage active participation and deeper learning in the classroom.

The blended learning approach offers the advantage of flexibility, convenience, and increased opportunities for interaction with the instructor and other students. Blended learning allows students to use tools they are already familiar with to optimize the learning process.

Body of Your Chapter:

Today’s students, often considered digital natives, are using technology to communicate, socialize and access information. As illustrated so powerfully by Professor Michael Wesch’s popular YouTube video, *A Vision of Students Today* at <http://www.youtube.com/watch?v=dGCJ46vyR9o> there is a strong disconnect between how students are reading and communicating outside of the classroom and how they are being asked to learn within a classroom. **Digital natives** are defined as those who “have been immersed in technology all of their lives, imbuing them with sophisticated technical skills and learning preferences for which traditional education is unprepared” (Bennett, Maton & Kervin, 2008, p. 775). Faculty, many of whom are **digital immigrants** having grown up before technology was ubiquitous**,** are often reluctant to incorporate emerging technologies into instruction even though today’s students read far more websites than books and may prefer online to face time. The very nature of a classroom must continue to evolve to a more blendedformat to stay relevant to today’s students and prepare them for a world in which the technology will continue to change rapidly and the job market will also continue to evolve – forcing students to prepare for a world in which lifelong learning will be essential for job security.

 Faculty must understand that the integration of technology into instruction is not merely for the sake of technology, but for the following essential reasons:

1. Engaging and motivating students
2. Developing Information Literacy
3. Enhancing learning and critical thinking Skills
4. Improving writing and communication Skills

Today’s faculty may feel that their own digital immigrant status makes it difficult or almost impossible to keep up with the changing technologies or embed technology tools into coursework, but the key point for faculty to realize is that even if students technological expertise exceeds their own, students still need guidance on how to apply the technologies to the disciplines, how to think critically about the vast amount of information available and how to make effective decisions about the technological tools available. In other words, students need help with **information literacy**. This is a skill that will assist them far beyond the time frame of a particular course or semester. Being information literate in today’s world is essential for success both professionally and personally. While students may have the tech skills, they do need help understanding how to access and manage and critique all of the information and technology available. The most effective instructors find ways to incorporate students’ tech-savvy abilities into exciting learning opportunities within their disciplines.

Faculty can encourage students move beyond Facebooking to creating Eportfolios to show off their academic accomplishments. Faculty can help students do more than just “Googling” by showing them how to conduct effective searches through online databases and peer reviewed journals, many now available in full-text online. Faculty can help students move beyond texting to twittering about what they are engaged in to show just-in-time learning.

**Managing the course with technology**

 **Course Management Systems** are organized tools used to support teaching and learning. Examples of popular Course Management Systems include Blackboard and Moodle. Initially, course management tools enabled faculty to create web-based course materials without requiring knowledge of HTML or other programming. Many universities rely on course management tools to deliver full online courses and programs and to supplement face-to-face courses.

While course management tools have been at the forefront of incorporating technology into instructions, they are quickly falling behind in terms of some of the exciting Web 2.0 tools that are available, often free, through cloud computing. While Web 1.0 tools such as static web pages and the Encyclopedia Britannica initially provided great resources for research and knowledge gathering, more interactive **Web 2.0 tools** such as blogs and Wikipedia provide opportunities for participation and collaboration in what Richardson calls the Read/Write web. Tim O’Reilly is credited with coining the term Web 2.0 at a conference in 2004 but the technology was not really new. What was new was the way it was being used – to create dynamic interfaces containing user-generated content. With Web 2.0 tools, students can consume and create information in multiple ways. The possibilities for teaching and learning with Web 2.0 are vast as we seek to move beyond delivering content to actually engaging students with the content.

Faculty can use blogs and wikis to engage students in critical thinking and writing in new ways. Whereas Web 1.0 focused on static webpages, Web 2.0 tools allow for easily created blogs and wikis that do not require any programming expertise to manage. Wikipedia captures the essence of Web 2.0 by gathering information from the wisdom of crowds rather than the traditional panel of a few experts. Richardson (2009) notes “Wikipedia is one of the most important sites for educators to understand. It represents the potential of collaboration on the Web” (p. 56). While many educators object to using Wikipedia as a credible source for information, faculty should keep an open mind about the concept of a wikis and even Wikipedia can be integrated into a lesson on a particular topic. Some examples of ways to embed wikis into curriculum are:

* Have students look up a term or concept on Wikipedia and rewrite the definition to make it more current and relevant.
* Create a course-based wiki to share group projects
* Create a community wiki to share co-curricular interests with a particular group of students, faculty and alumni.

There are many free wiki tools available such as <http://www.wikispaces.com> , <http://www.wetpaint.com/wiki> and <http://pbworks.com>

By the time of this text’s publication, this list may change, but the ideas behind the wiki such as collaboration and participation will probably remain the same. Faculty also need to realize that creating a course-based wiki does may pose some philosophical challenges in terms of authorship and intellectual property since wiki collaborators typically have the ability to alter others’ writing. The ways faculty view scholarly writing and plagiarism will need to be addressed before incorporating a wiki into a course.

**RSS Aggregators and Social Bookmarking** are Web 2.0 tools that help to organize the flow of information. Many people feel overwhelmed by the amount of information available online. RSS feeds and social bookmarking are two great ways to help educators and students keep current and find meaningful information on topics within their fields. RSS means Real Simple Syndication. This Commoncraft video explains what RSS does in basic terms: <http://www.youtube.com/watch?v=0klgLsSxGsU> . Essentially, RSS feeds allow users to subscribe to webpages and blogs so that the news that users regularly like to check comes directly to them through a reader. There are many different readers available such as Google, Yahoo and Outlook. Once one has established a reader and subscribed to some webpages and blogs, the news comes directly to you – creating “The Daily Me” (Richardson, 2009, p. 72).

Social Bookmarking is a way of sharing links of common interests. Sites such as Del.icio.us and Digg help users to see what others are reading and tagging. “RSS lets us read and connect with what others write; now we can read and connect with what others read as well” (Richardson, 2009, p. 89). Both RSS Aggregators and Social Bookmarking tools can be used in a variety of innovative ways by college faculty such as:

* Require students to set up RSS feeds on key topics within a discipline.
* Ask students to share the most interesting online discoveries with others through Del.icio.us and search for other related materials using tags.
* Have students follow a political or local issue through RSS feeds.

**Flickr and YouTube** are free online image and video sharing services that have revolutionized the way content is shared. Flickr (<http://www.flickr.com> ) encourages users to “share your photos” and “watch the world”. What makes this site more than just an online photo album is the tagging, annotating and commenting that occurs, making this truly social software. Tagging is the process of individual’s labeling and classifying content on the web. It allows for others to search for items of similar interest and it has been one of the key elements of interactivity and participation of Web 2.0. The annotation feature allows people to label or mark up photos and visitors can add their comments as well. Richardson (2009) notes, “the real power of Flickr lies in the ways it can connect people from around the world” (p. 103). Another interesting element in Flickr is the ability to identify locations of photo, and short videos, via Google’s online maps. Through this feature, photos can become part of larger story that is tracked by location.

Since 2005, YouTube has encouraged users to “Broadcast Yourself” at <http://www.youtube.com> . Now owned by Google, when news breaks, it often breaks first on YouTube and then spreads to more traditional sources such as newspapers and TV stations. It is easy to upload a video from one’s computer or digital camera and then as with Flickr, tagging and commenting become part of the interactive storytelling. Faculty can incorporate YouTube into instruction in a variety of ways and in the same ways that YouTube has been influential in sharing news and entertainment; it can also share exceptional university teaching and thinking. Faculty such as Michael Wesch and Marian Diamond have become university celebrities via YouTube (Wilen-Daugenti, 2009).

Faculty can use Flickr and YouTube and other file sharing services to help create and share stories within their own disciplines. Alexander and Levine (2008) write about Web 2.0 storytelling as the emergence of a new genre. Social Media allows for “Stories that open-ended, branching, hyperlinked, cross-media, participatory, exploratory, and unpredictable” (Alexander & Levine, 2008, p. 40).

Some ways in which Flickr and YouTube can be integrated into instruction are:

* Show film clips with a History or English class
* Include YouTube clips of famous speeches in a Speech course
* Show pictures/videos of natural disasters in an Environmental Studies course.
* Show current events pictures/videos to spark a discussion in any discipline.
* Use the mapping feature in Flickr to take a virtual field trip.
* Assign students a presentation that incorporates either video or photo sharing elements.

**Social Networking** including tools such as Facebook <http://www.facebook.com> , LinkedIn <http://www.linkedin.com> and Twitter <http://twitter.com> are gaining in popularity in our culture, yet still remain somewhat outside of the classroom experience. Faculty who are able to incorporate social networking tools will find that it can engage, motivate and even enhance the learning experience for today’s digital native students. For many faculty, this process remains daunting since the tools are changing so rapidly and by the time of publication of this text, there will probably be other tools to add to the list. Also, some faculty are skeptical about the academic applications of these tools since so much is written about these tools being used in social settings, but in a process of consumerization, many of these tools can be explored in a personal setting at first and then later applied to an academic setting.

Facebook and LinkedIn are ways in which people can connect with one another based on similar interests and networks. Facebook started as a way for college students to connect with one another but has expanded tremendously. LinkedIn is more of a professional social networking site allowing connections to be made and professional job histories and consulting interests to be shared. Twitter is a microblogging service that requires users to share their thoughts in 140 characters or less per “tweet”. This tool often draws much skepticism because of its limitations in space and its use by many celebrities and non-celebrities to post trivial messages. But Twitter’s global impact has often been underestimated as well its academic potential.

Our students are already using these tools, so the challenge to faculty is to find ways to engage them in academic purposes. Some possible examples include:

* Create a Facebook Group page for a course and require students to have discussions and share resources through this page.
* Use LinkedIn to connect with Alumni in fields related to current students’ interests to arrange internships or shadow programs.
* Use Twitter to send out announcements, reminders or links related to a course topic.

**Holding students accountable**

 With all the technology tools students will be using in the classroom, instructors are often left wondering how they will evaluate their students’ use of these skills. Faculty may take the following into consideration when evaluating student work:

1. Use Rubrics to guide and assess student work
2. Implement Formative and Summative Assessment
3. Employ Chickering and Gamson’s (1991) Seven Principles of Good Practice
4. Require students to create eportfolios to showcase their work

**Rubrics** are scoring tools used to evaluate a given piece of work based on a set of criteria (Andrade, 2000). Rubrics set clear guidelines for students so they can meet faculty expectations and course requirements. For example, if faculty require students to participate in online course discussions, a rubric for the discussion posts would include specifics on the quality and quantity of the responses as well as deadlines.

Rubrics can also help students become better judges of their own work and the work of others (Andrade, 2000). Through repeated use of rubrics in self and peer assessment, students are better able to identify and solve problems in their work. Rubrics are easy to use and can save faculty time in the grading process. Instead of writing a detailed explanation for a grade in an online course, faculty can just refer students to the posted rubric.

The use of rubrics often results in better student learning and improved work quality. Students are better able to articulate what they have learned when rubrics are used.

BothFormative and Summative Assessments should be used to evaluate student use of Web 2.0 tools. Formative assessments are part of the instructional process and aide faculty in adjusting their teaching during the learning progression. An example of formative assessment would be giving a student verbal feedback on their blog verses assigning them a grade. Encouraging peers to comment on a students’ photography project posted on Flickr would be another way in which formative assessment can be used to evaluate students’ Web 2.0 skills.

Summative assessments are typically used to assign a grade to a given project or course. These assessments are usually given at the end of a learning period to evaluate the effectiveness of student performance. Examples of summative assessments include tests, projects, and papers. Faculty may use summative assessments to evaluate various Web 2.0 skills from the efficacy of Wikepedia entries to the popularity of a student created poetry blog.

The Seven Principles of Good Practice (Chickering & Gamson, 1987) were originally designed to help faculty members examine individual student behaviors and improve teaching and learning in the traditional face to face classroom. However, the principles can also be used to evaluate learning in the online environment. The seven principles include Faculty-Student Contact, Cooperation Among Students, Active Learning, Prompt Feedback, Emphasizing Time on Task, Communicating High Expectations, and Respecting Diverse Talents and Ways of Learning.

The first principle (Faculty-Student Contact) highlights faculty involvement and availability to students. In the online classroom, faculty need to set clear guidelines for student email requests. Students should provide a clear subject line and identify the course they are taking in the subject line or email body. Faculty must clearly outline the response time for student emails so students realize that a reply is not always immediate.

Chickering and Gamson’s (1987) second principle of Cooperation Among Students gets a boost with Web 2.0 tools. Today students can join social networking groups to connect with others. Students can now evaluate their peer’s work online using the file sharing features of course management systems. Online discussion boards can also be set up to assist meaningful cooperation among students.

Student presentations can be included in online courses to Encourage Active Learning. Posting PowerPoint presentations or case studies to a course site allows for student feedback and students can make changes to their presentations based on their peers’ responses (Graham et al., 2001). Students can obtain Prompt Feedback from online quizzes and tests. Online technology also provides instructors with a means to contact students more frequently than face to face interaction allows. Graham et al. (2001) suggest instructors give two types of feedback: “information feedback” and “acknowledgment feedback.” Information feedback is given when instructors answer a quick email question while acknowledgement feedback occurs when confirmation is sent that an assignment is received (Graham et al., 2001).

Students need to adhere to deadlines in Chickering and Gamson’s (1987) fifth principle Emphasizing Time on Task. Setting up clear deadlines in an online course allows students to know faculty expectations and aides them in organizing their time online. Online course management systems can be used to post homework assignments so students can easily hand in assignments on time if they are absent.

 In terms of Communicating High Expectations, instructors can post past examples of student work online for current classes to model (Graham et al., 2001). In online discussion boards, instructors can easily highlight strong posts for other students to follow. Faculty should email or post course progress to keep students on track. Referring students to course rubrics is also suggested.

In order to foster a Respect for Diverse Talents and Ways of Learning, students should adhere to proper netiquette. Netiquette involves the respectful and courteous exchange of ideas in an online environment. Netiquette rules or guidelines can be set for each course to ensure politeness and avoid harassment (Holeton, 1988). The netiquette policy should be included in the syllabus or prominently featured in an online course.

**Eportfolios** are digital collections of student work created over a given period of time. Eportfolios showcase student’s understanding of concepts and skills while providing an opportunity for self-reflection. Web 2.0 tools can easily be incorporated in the eportfolio process. For example, students can create YouTube videos of their speeches and post them to their eportfolios for peers to comment on. Wikis can also be used to create opportunities for student interaction and feedback. The eportfolio then becomes a type of digital resume for students when it can be shared with a public audience.

A simple rubric designed by both students and teachers should be created for evaluating eportfolios. Components such as graphic elements, active hyperlinks, personal reflections, and the development of peer reflection can be evaluated in the eportfolio rubric.

Practical Considerations (Best Practices)

The following chart shows how to integrate Web 2.0 tools with practical assignments in a range of disciplines. This will aide faculty in effectively incorporating technology in their courses. Insert Figure 1.1 here.

|  |  |
| --- | --- |
| Web 2.0 Tool | Sample Assignment |
| Wikis | Create a course-based wiki to share group projects in a business course. |
| RSS feeds | Have students follow a health issue through RSS feeds. |
| Social Bookmarking | Ask students to share political current events with others through Digg. |
| Flickr | Use the mapping feature in Flickr to take a virtual field trip for a history course. |
| YouTube | Include YouTube clips of famous speeches in a Speech course. |
| Facebook | Create a Facebook Group page for a course. |
| LinkedIn | Use LinkedIn to connect with Alumni to arrange internships. |
| Twitter | Use twitter to send out announcements, or links related to a course topic. |

*Figure 1.1*. Web 2.0 Best Practices.

Faculty are also advised to incorporate rubrics when evaluating student use of Web 2.0 tools. Below is a general rubric for assignments. The rubric can be adjusted by discipline and assignment. (Insert Figure 1.2 here)

*Assignment*: Create a blog related to course materials. Include course concepts in the blog content. Posts to the blog must be made at least once a week. Students must also post on classmates' blogs

Instructions
Create a blog related to course materials.  Include course concepts in the blog content.  Posts to the blog must be made at least once a week.  Students must also post on classmates' blogs.

 3 Excellent

2 Good

1 Satisfactory

0 Unsatisfactory

|  |  |
| --- | --- |
| Course Blog |  |
| *Timeliness*: Met all assigned deadlines | 0 1 2 3 |
| *Communication*: Expressed thoughts clearly | 0 1 2 3 |
| *Writing*: Proper spelling, grammar, punctuation | 0 1 2 3 |
| *Initiative/Motivation*: Made suggestions on other student work and implemented feedback | 0 1 2 3 |
| *Application to discipline*: Incorporated class concepts | 0 1 2 3 |
| *Real World Application*: Related project to current events | 0 1 2 3 |
| *Creativity*: Included unusual viewpoints and ideas | 0 1 2 3 |
| *Appearance*: Project visuals appropriate and easy to follow | 0 1 2 3 |

 *Figure 1.2* Customizable Web 2.0 Rubric

**Conclusions**

Faculty are facing many challenges in the classroom today. Students are texting, IM’ing, and twittering constantly. One possible way of motivating today’s college students is to incorporate some of these tools in such as way that they add to the learning experience. Blending Web 2.0 tools into instruction can be motivating for students and can actually help them learn better by adapting the selected technologies to match their learning styles. More research needs to be done in this area to determine the best ways to incorporate emerging technologies and to assess what improvements are made.

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Appendix

Instructor Resources

Chickering, A., & Gamson, Z. (1987). Seven principles of good practice in undergraduate education. *AAHE Bulletin, 39*, 3-7.

 The authors describe seven key principles designed to help faculty members examine individual student behaviors and improve teaching and learning in the classroom.

[www.epsilen.com](http://www.epsilen.com)

The software system provides eportfolio and social networking services to users. Epsilen offers

a repository for the creation and storage of learning objects in electronic format.

Multimedia Educational Resource for Learning and Online Teaching: [http://www.merlot.org/](http://www.merlot.org/merlot/index.htm)

The online community comprised of faculty, staff, and students from around the world provides

peer reviewed teaching and learning materials along with pedagogical strategies.

Tomorrow’s Professor Listserv Stamford University: <http://ctl.stanford.edu/Tomprof/index.shtml>

The fully moderated list seeks to foster a diverse, world-wide teaching and learning ecology

among its subscribers. The list contains hundreds of archived posts.