

# Classroom 2.0: Student's Feelings on New Technology in the Classroom



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## Abstract

Web 2.0 technology is impacting students not only socially, but also in the classroom. Based on the need for educators to be better informed as to how this technology may be best utilized in educational pursuits, this study explored the usage and preferences for Web 2.0 technology by students at four Land-Grant institutions in the Eastern United States. Findings indicated that while students use the Internet and email both in and out of the classroom; technologies like social networking, blogging, and virtual environments are used minimally. While some past studies have indicated students do not make use of podcasts when provided, students in this study indicated a desire to include more podcasts in their courses. Students tended to prefer classes that use new technology to focus on real-world task and examples and to disagree with statements indicating that faculty members should use technologies to be friends with students. A key implication of this study is the need for researchers and educators to continue to monitor how agricultural students and their instructors adopt and use new technologies.

## Introduction

As the “net generation” enters into higher education, it is our challenge as educators to be prepared to offer students the type of engaging education that will not only help them learn, but will also help them in their search for a career. Many educators have described these so-called “millennial students” as being more “plugged in” and technology savvy than previous generations. In a recent article in the *Chronicle of Higher Education*, Richard Sweeney of New Jersey Institute of Technology challenged educators by explaining that in order to get this generation of students involved we must engage

them through all of the resources available, especially technology (The *Chronicle of Higher Education*, 2007). Using new technology as an engagement tool inside the classroom may not only help such students learn in an environment in which they are comfortable; it will also help prepare them for future careers where familiarity with current technology will become even more important. In addition, infusion of new technology into agricultural courses and classrooms will also attract students who are looking for programs that are using current technologies in their curriculum.

Eastin (2001) described college students as one of the most represented populations online. A study by the Pew Internet and American Life Project found that this current generation of student has not experienced a world without technology, and in fact relies on it in their daily lives (Levin and Arafeh, 2002). In their study, Levin and Arafeh noted that students feel the Internet is a tool that helps them navigate through schoolwork. The high school students interviewed wanted to be more engaged in the classroom with activities using technology relevant to their lives.

For many college students, new technology includes Web 2.0 applications. Rhoades and colleagues (2007) reported that 85.2% of college of agriculture students were active users of social networking sites like Facebook and MySpace. Students in this same study did not indicate being frequent users of online videos, but did indicate online music sites as a frequent stop in their online visits. Jones and Madden (2002) found that 68% of college students studied used the Internet and new technologies such as academic list-serves to gain more in-depth information in their field of study. However, other researchers have shown that some of

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these technologies are slower to catch on with this age group. Madden (2006) noted that of 18-29 year-olds, only 10% had downloaded a podcast.

While many definitions exist for Web 2.0, this study follows the definition that Web 2.0 is all second-generation Internet applications. These include applications and technologies such as: RSS (really simple syndication), which allows a format for delivering updated and customized changing content on blogs and podcasts; blogs and podcasts themselves which allow information to be shared in text, video, and/or audio; wikis, which allow users to collaborate through creating and editing an open source website; social bookmarking, which allows users to rank and share resources through tagging; and social networking, which allows users to facilitate communication with other users through video, audio, photos, discussion boards, and other interactive methods (Voithofer, 2007).

While researchers may know little on how students use these technologies in academic settings, much research and popular media has discussed the usage of these tools by college-aged students in their social environments. Jones and Madden (2002) found that 85% of the students studied felt that the Internet and its related tools were an easy and convenient way for them to communicate socially with friends. This same study found that these students were not only keeping in contact with friends on campus, but they were staying in contact with friends from high school. Many of the students were spending a majority of their time online using the Internet for social communication. Jones and Madden described college students as a unique population, members of whom are transitioning from teen Internet user, where they used the Internet as entertainment, to adult Internet user, where they spend their time online in social engagement and information seeking.

This transition could cause a difficulty for educators trying to integrate technology into their classrooms. While students are increasingly calling for these technologies in their courses, many are still visualizing Web 2.0 as a social tool and may not enjoy it in the classroom. Smith (n.d) found that 62.5% of students in their study felt some of their classes should be using technology, but only if it was successfully integrated into class topics. The author noted that students described many instances when the technology actually hindered learning, as the faculty members were ineffective in its usage. Twenty-three percent of respondents felt that many times technology use resulted in instructors moving over complex topics too quickly. Regardless of level of effectiveness in use by their instructor, some students would still not use the technology. Oberdick (2006) found in a study of students at Pennsylvania State University that only 11% of students used podcasts when integrated into their courses.

Not only are today's faculty in agricultural institutions, as elsewhere, faced with the technical

concerns of successfully integrating technology into the courses they teach and getting students to use what may be considered an entertainment tool for education, but they also must deal with a new teaching dilemma. Recently, in certain circles faculty have started discussing when educators should integrate technology students enjoy into the classroom and when they should be left as just entertainment tools. For example, a recent article in the *Chronicle of Higher Education* (Lipka, 2007) discussed the prevalence of professors on Facebook, and students' reluctance to having them as "friends." As Lipka discussed, use of social networking technologies are starting to blur the lines between professor and friend.

Despite these challenges, there are many calls to integrate technology, specifically Web 2.0 technology, into courses (Alston, and Warren, 2007; Kotrlik, et al., 2003; Maloney, 2007). Maloney (2007) discussed the many ways in which educators could utilize mashups, tagging, and social networking to engage students in finding more in-depth information about course topics. Kotrlik and colleagues (2003) contended that agriscience teacher educators must work to integrate technology into their curriculum to help future teachers understand how to reach secondary-students with the same technology they use on a daily basis. Alston and Warren (2007) also recommended that agricultural education faculty utilize more web-enhanced instruction and assignments to better prepare future leaders in agriculture.

As new technology arrives and becomes integrated into society, these same discussions arise among education researchers. How can we more effectively use new communication technology (whether television, the Web, or now Web 2.0) to further our students' understanding of our discipline?

### **Uses and Gratifications**

Many communications and psychology professionals have used the theory of uses and gratifications to explore the use of media in social and educational arenas. While the theory does not focus on the effectiveness of new media technology as an educational tool, it can shed light on students' perceptions of media's value to them as an entertainment versus an information tool.

From a theoretical perspective, uses and gratifications is a model that describes how a media user's social, psychological, and environmental needs, along with their need to communicate, affects the medium they prefer to use. The theory explains the cognitive processes that take place between the needs of an individual and how that individual gratifies their needs using media (Blumler, 1979). A media user's attitude toward the medium chosen and the perceived effectiveness in gratifying that need will affect their use of it for that same purpose in the future (Rubin, 1994). As indicated by the theory, individuals

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are actively seeking out information to fulfill some form of need. These motivating needs can include entertainment, surveillance of their world, information, diversion, escape, social interaction, parasocial interaction, identity, passing time, or companionship (Rubin, 1994).

Graber (1984) discussed that individuals go to a specific media source to receive gratification, and if they receive that gratification, they are more likely to learn from that media. As educators, it is important to provide the right type of information sources to gratify our students' need for information. If instructors are using the wrong medium, they may not be meeting this need, and thus their students may be tuning out. Researchers have noted that prior experience with a medium will many times lead to an individual's decision to use that medium again to satisfy their future needs (Graber, 1984). Thus, if students have used a wiki in the past to gather more knowledge successfully for a class project, they will be more likely to return to a wiki and feel comfortable using it for that purpose.

By understanding student's usage of Web 2.0 technology and perceptions of their use in the classroom, educators in all fields will be better informed as to what technology may be most beneficial to use in a given educational context. The purpose of this study was therefore to explore agricultural undergraduate students' use of Web 2.0 technology and their perceptions of its integration into their classrooms. The specific objectives guiding the study were:

1. Determine selected demographic information of participating undergraduate students.
2. Determine preferences of Web 2.0 technology as used by participating undergraduate students.
3. Determine undergraduate students' preferences with respect to student-faculty interaction via Web 2.0 technology.

## Materials and Methods

### Subjects

The sample for this study included intact classes (N=317) of undergraduate students enrolled in either a speech or related leadership course at one of four Land-Grant institutions in the Eastern United States. Since the study was directly administered, researchers chose the four institutions based on diversity of the institution and convenience to the researchers. In order to achieve a broad sample of students, researchers selected courses taught in the college of agriculture that continually enroll a variety of class ranks and majors. Due to the makeup of the study population, findings are not generalizable past this study.

### Instrumentation

The researcher-developed, 25-item instrument included basic demographic data as well as questions concerning current use of Web 2.0 technology in and

out of the classroom. Students responded to the first 15 items with a check signifying yes, while leaving the item blank indicated a no. The study further asked students to indicate their preferences for podcast usage in their education, and their opinions on social networking sites used in the classroom. Finally, students answered eight questions regarding their opinion on faculty usage of software like Facebook and MySpace for educational purposes. For these questions, students indicated the level they agreed or disagreed on a five-point Likert scale. Questions were adapted from a previous study completed by McGee and Diaz (2006). A panel of experts confirmed face validity of the items. Cronbach's alpha determined instrument reliability at .70. Effective measures of the reliability of such variables can be complex to achieve with newly developed instruments, so while it is moderate, a .70 alpha reliability can be acceptable (Ary, et al., 2002).

### Data Collection

Researchers collected data through direct administration of the instrument in one course at each of the four Land-Grant institutions at the beginning of the fall term. Participants received no incentives for their participation.

## Results and Discussion

The first objective of the study was to determine selected demographic information of participating undergraduate students. Of the total student group, 56% (n=178) were female. (See Table 1.) The mode age of all students was determined as 21 years of age (n=112) while the youngest student declared an age of 18 years and the oldest student reported an age of 37 years. Participating students were comprised mostly of seniors (n=156, 49%), and juniors (n=116, 37%). There were also 35 (11%) sophomores and 10 (3.2%) freshman enrolled in these four courses. In this group, the average GPA of all students was 3.24. Among students enrolled in the study courses, there were 57 different academic majors represented, with the most prominent including animal science (n=33, 10%), construction systems management (n=29, 9%) and family youth and consumer sciences (n=23, 7%).

Examining the demographics, the evidence suggests that most of these students were traditional undergraduate students. A wide variety of academic majors were represented at each institution, indicating that these courses were populated with a diverse group of student interests.

The second objective of this study was to determine undergraduate students' preferences of Web 2.0 technology (See Table 2). Considering participating students' personal use of Web 2.0 technology, the technologies used most are the Internet in general (n=306, 95.5%); email (n=304, 95.4%); Facebook (n=272, 85.8%); iPod or mp3 player (n=236, 74.4%); Blackboard/WebCT (n=171, 53.9%); MySpace (n=137, 43.2%); blogs (n=77, 24.3%); podcasts



(n=64, 20.2%); and wikis (n=64, 20.2%). Findings indicate that most students are personally using Internet, email, and Facebook; however few students are using virtual worlds like Second Life, less known social networks like Frindster, ePortfolio, or RSS/XML technologies.

Examining students' in-class use of these same technologies, the most used with regard to all participating students are: Blackboard/WebCT (n=250, 78.9%); Internet (n=235, 74.1%); and email (n=197, 62.1%). (See Table 3.) These findings indicate that in

these undergraduate classes, students are using technologies like Blackboard/WebCT, Internet, and email, but instructors have not fully integrated blogs, wikis, or podcasts into the classes. Just as seen with students' personal use, technologies like Second Life, Frindster, and RSS/XML are minimally used.

Considering personal use of the newest technologies, even common technologies such as Facebook, iPods, and blogs are not being fully adopted by these students. As expected, these undergraduate students are personally using the Internet, email, and Facebook. However, only a small percentage of these students are using more advanced/cutting edge technologies (Second Life, Frindster, ePortfolio, RSS/XML). In these students' classes, the most used technologies included Blackboard/WebCT, Internet, and email while the least used technologies include Second Life, Frindster, and RSS/XML. This is not surprising, as Second Life and similar virtual worlds are still a growing arena of Web 2.0 and may not be adopted by students yet. The Horizon Report (2007), a joint venture with the EDUCAUSE Learning Initiative and the New Media Consortium, reports that educators must closely monitor virtual worlds, as in the next two to three years they should be making a large impact. The report also describes social networking sites as a technology that will be fully adopted by students in the next year, making it another technology that needs to be monitored closely. College populations have not traditionally populated Friendster, another social networking site, but college students are big users of Facebook and MySpace, making this finding not surprising.

Considering participating students' desire for using these technologies in classes that currently are not being used by their instructors, most students were interested in podcasts (n=84, 26.5%); ePortfolio (n=61, 19.2%); RSS/XML (n=50, 15.8%); iPod or mp3 player (n=45, 14.2%); and blogs (n=41, 12.9%). (See Table 4.) However, none of these four technologies are preferred by a large percentage of students.

The least preferred technologies for additional use in the classroom include Blackboard, email, and the Internet, indicating that instructors may already be using these technologies on a regular basis.

Additionally, students responded as to whether they would use podcasts of their course if provided by an instructor. Counting all students, 64.7% (n=198) said yes. Note that eleven students did not answer this question. This evidence suggests that the majority

**Table 1. Demographics of participating students**

Institution	Total
Participants (n)	290
Gender	
Male	44%
Female	56%
Age	
Mode	21
Class	
Senior	49%
Junior	37%
Sophomore	11%
Freshman	3.2%
Grade Point Average	
Mean (M)	3.24

**Table 2. Student personal use of Web 2.0 technology (n=317)**

Ranked item	Total	
	n	%
Internet	306	95.5
Email	304	95.4
Facebook	272	85.8
iPod (mp3 player)	236	74.4
Blackboard/WebCT	171	53.9
MySpace	137	43.2
Blogs	77	24.3
Podcasts	64	20.2
Wikis	64	20.2
Other virtual environments	28	8.8
RSS/XML	23	7.3
ePortfolio	17	5.4
Frindster	10	3.2
Second Life	6	1.9

Note. Prompting question: Which of the following technologies have you used personally?

**Table 3. Student in-class use of Web 2.0 technology (n=317)**

Ranked Item	Total	
	n	%
Blackboard/WebCT	250	78.9
Internet	235	74.1
Email	197	62.1
Blogs	32	10.1
Wikis	32	10.1
Facebook	30	9.5
Podcasts	30	9.5
iPod (mp3 player)	22	6.9
Other Virtual environment	16	5.0
ePortfolio	12	3.8
MySpace	8	2.5
RSS/XML	7	2.2
Frindster	2	.06
Second Life	4	1.3

Note. Prompting question: Which of the following technologies have you used as part of your current courses at your university?

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of students would use podcasts if provided in their courses.

The instrument presented a follow-up question, asking students if their course currently had podcast lectures, when do they view/listen to them? (See Table 5.) Their responses included while studying ( $n=48, 53.9\%$ ); to and from class ( $n=9, 10.1\%$ ); while driving ( $n=8, 9.0\%$ ); and while exercising ( $n=7, 7.9\%$ ). This data suggests that students tend to use podcasts during study time and are less likely to use podcasts while performing other activities.

The findings on podcasts are surprising, as other researchers have noted that in courses where instructors have used podcasting, students only minimally took advantage of the resource (Oberdick, 2006). It could be that students merely like the idea of podcasts, but have not yet experienced how they might be used in the classroom. Alternatively, it could be that students have adopted podcasting technology more with the newer versions of iPods and MP3s that streamline video and podcast watching, and the popularity of sites like YouTube. More research is needed to identify best practices as to how this technology can be implanted successfully into the classroom.

Objective three assessed undergraduate students' preferences as to faculty interacting with them using Web 2.0 technology. The statement with the

highest mean was, Classes that use new technology are more likely to focus on real-world task and examples ( $M=3.48, SD=0.93$ ) indicating a tendency to agree with this statement. (See Table 6.) The statement with the lowest mean was, I am friends with my professors on Facebook/MySpace ( $M=2.51, SD=1.20$ ) indicating a tendency to disagree with this statement.

This finding suggests that while instructors must explore the opportunities these new technologies offer, they must be cautious in how they integrate them. These students tended to disagree with statements indicating that faculty members should use Facebook and MySpace technologies more in class and be friends with students. Nevertheless, the mean responses to these questions revolved around three on a five-point Likert scale, indicating either a neutrality or uncertainty to this issue. As these technologies grow in popularity with both students and faculty members, more research must be done to determine the implications of using these technologies in the classroom. With the fear of some educators and students about the blurring line of professionalism on these sites, it is important that researchers and educators explore best practices for the usage of social networking environments in education. Students also indicated a low or neutral feeling to faculty using social networking in courses. This

indicates that Web 2.0 technology has not entirely crossed over from entertainment tool to information tool, and this should be taken into consideration when used in the classroom.

## Summary

Researchers must continue to monitor how students in agriculture and their instructors are adopting and using new technologies. It is apparent from the findings in this study that instructors at all of these institutions have so far made minimal progress in adopting new Web 2.0

technology into their curriculum. While course management and basic communication technology has been adopted, it is time that instructors begin to further explore adoption of some of the newer communication methods into their coursework. Although a small percentage of students in this study indicated a desire for additional use of podcasts, ePortfolio, and RSS/XML, it may be that these are some of the newest

**Table 4. Student additional desire for in-class use of Web 2.0 technology (n=317)**

Ranked Item	Total	
	<i>n</i>	%
Podcasts	84	26.5
ePortfolio	61	19.2
RSS/XML	50	15.8
iPod (mp3 player)	45	14.2
Blogs	41	12.9
Second Life	34	10.7
Frindster	33	10.4
Other virtual environments	31	9.8
Wikis	30	9.5
Facebook	18	5.7
MySpace	15	4.7
Internet	9	2.8
Email	7	2.2
Blackboard/WebCT	5	1.6

*Note.* Prompting question: Which of the following technologies have you not used in class, but wish your instructors would use in class?

**Table 5. Times students use podcasts lectures (n=89)**

Ranked Item	Institution Four	
	<i>n</i>	%
While studying	20	51.3
To and from class	6	15.4
While driving	4	10.3
Other times	4	10.3
While exercising	2	5.1
While at work	1	2.5
While walking across campus	2	5.1

*Note.* Prompting question: If your course has podcast lectures, when do you listen to or watch the lectures?

**Table 6. Student Preferences for Interacting with Faculty Using Web 2.0 Technology (n=317)**

Ranked Item	<i>M</i>	<i>SD</i>
Classes that use new technology are more likely to focus on real-world Tasks and examples.	3.48	0.93
The instructors' use of technology has increased my interest in the subject matter.	3.40	0.99
I spend more time engaged in course activities that require me to use technology.	3.27	1.08
My instructors being on Facebook/MySpace shows they are in touch with students.	3.20	0.97
Faculty should not be on Facebook/MySpace	2.80	1.14
My instructors being on Facebook/MySpace is an intrusion into my privacy.	2.75	1.15
I think there should be more social networking technology like Second Life or Facebook used in my courses.	2.62	1.11
I am friends with my professors on Facebook/MySpace.	2.51	1.20

*Note.* Prompting question: Please indicate if you agree or disagree with the following statements. Scale equals: one—strongly disagree, two—disagree, three—neutral, four—agree, five—strongly agree.

technologies that will be used in future undergraduate classrooms. Faculty members and instructors should start becoming familiar with these technologies as they become more popular with undergraduate students. The theory of Uses and Gratifications suggests that communication users are drawn to media that has previously gratified their informational needs. If students are using these technologies successfully in their social life; it is incumbent on us as educators to explore their successful use in academia.

As with each new technology that enters the social realm, educators must evaluate the prospective advantages and disadvantages of Web 2.0 technology in the classroom. With many institutions buying “islands” in virtual worlds like Second Life, forming recruitment “groups” on social networking sites, and encouraging their faculty to develop research blogs and wikis, these technologies are being integrated into the workings of higher education. Based on the findings of this study, students in colleges of agriculture, similar to other populations, are slowly adopting Web 2.0. Educators must learn, and monitor, the best practices to integrating these tools into higher education classrooms. Researchers must also keep up on which of these new communication technologies are perceived as entertainment tools versus information tools in students' minds. It may be difficult for successful integration of such technology if the format does not gratify students' informational needs.

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