

Internet as an Information Source: Attitudes and Usage of Students Enrolled in a College of Agriculture Course

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Abstract

With Internet usage in the United States hitting an all-time high information technology use in education has continued to increase. Many college students have described the Internet as a functional tool that helps them to communicate with professors, do research, and access library materials. As more and more students and educators are envisioning the Internet as a source for information to be used in the classroom, it is important that we monitor students' attitudes and usage. As educators we need to ensure students know how to use technology effectively by recognizing credible sources and utilizing the correct technology for each situation. This study utilizes a descriptive survey to understand the current usage and attitudes toward the Internet by students enrolled in college of agriculture courses at a large Southeastern Land-Grant University. Findings indicate that these students are heavy users of the Internet and programs like Facebook, MySpace, and search engines. Students indicate believing that the Internet is easy to understand, important, beneficial, believable, and accurate. Recommendations are offered as to what these findings mean for instructors in the classroom.

Introduction

With Internet usage in the United States hitting an all-time high, and approximately, 73% of all American adults using the Internet in their daily lives (Madden, 2006), information technology use in education has also continued to increase. In 2004, 135.82 million of all Americans were active Internet users (ClickZ, 2005), and one in five Americans revealed that they relied heavily on the Internet to find information (Horrigan & Rainie, 2002).

College and high school students currently represent the largest population of Internet users (Eastin, 2001) making them an important subset to study. An overwhelming 96% of all 18-29 year-old users find the Internet a good way to get information, compared to 91% of all older users (Fallows, 2004). The Pew Internet Project noted that 87% of all 12 to 17 year olds use the Internet, and 78% of them use it at school (Rainie & Hitlin, 2005). It has been stated by some that most college freshmen will appear on campus with newer technology than many of the schools themselves have ("Freshmen Arrive", 2006).

With this new technology available to them, many students report that the Internet plays an important role in their education (Jones & Madden, 2002). A recent study of teenagers noted

that 71% use the Internet as a primary source for school projects, effectively replacing the library for some (Lenhart, Simon, & Graziano, 2001). Students have reported using the Internet to communicate with teachers and other students, as well as cheat on assignments. A total of 18% of teens reported knowing someone who used the Internet to cheat on an assignment or test (Lenhart, Simon, & Graziano, 2001).

College students have also indicated technology's influence, with 79% reporting the Internet has had an impact on their college experience (Jones & Madden, 2002). College students describe the Internet as a functional tool that helps them to communicate with professors, do research, and access library materials. Seventy-three percent of college students state that they use the Internet more for information searches than they do a campus library (Jones & Madden, 2002). With so many students looking for information online educators and librarians worry that students who enjoy the ease of finding information online will not recognize credible, academic sources when researching school projects (Jones & Madden, 2002).

While no current studies were located that look at Internet usage and credibility of students enrolled in agriculture courses, several studies have been done in the past assessing students' computer experiences (Johnson, Ferguson, & Lester, 2000; Johnson, Ferguson, & Lester, 1999). Johnson, Ferguson, and Lester (2000, 1999) studied students' computer usage and self-efficacy during courses held in 1998 and 1999. While they found a below average level of computer self efficacy in 1998, a slightly above average level was noted for students during 1999 (Johnson, Ferguson, & Lester, 1999; Johnson, Ferguson, & Lester, 2000). More than 50% of students in the study noted having above average skills in electronic mail, word-processing, and Internet usage (Johnson, Ferguson, & Lester, 2000). The researchers concluded that two-thirds of the students owned their own computer, yet lacked confidence in their overall abilities in certain areas of computer usage (Johnson, Ferguson, & Lester, 2000). Wingenbach (2000) found that learning style played a role with field-independent learners finding more enjoyment in taking computer skills exams electronically than field-dependent learners. The researcher also noted that field-dependent learners showed more anxiety about the computing process in terms of attitude toward the computer. It was noted that findings indicated that learning style of the student can affect achievement, computer anxiety, and attitude (Wingenbach, 2000).

Attitude has been shown to be an important predictor of usage and implementation of technology (Rodgers & Chen, 2002). While attitudes are not directly observable, they can be inferred from responses given that show some state or disposition that has been engaged (Eagly & Chaiken, 1993). The assumption by researchers is that attitudes are formed through a cognitive learning process where one gains information and then forms beliefs. The information is gained through experiences with the object, such as the Internet or a particular Website (Eagly, & Chaiken, 1993). With the high usage of the Internet, it can be assumed that secondary and post-secondary students have had many experiences on the Internet and have formed attitudes toward its usefulness and credibility when doing academic work.

College courses are continuing to increase their number of required tasks students must do using the Internet, electronic mail, and technologies such as blogging and podcasting (Johnson, Ferguson, Vokins, & Lester, 2000; Beeson, 2005). As more and more students and

educators are envisioning the Internet as a source for information to be used in the classroom, it is important that we monitor students' attitudes and usage to ensure curriculum is developed to meet the needs of this technology rich generation. It is imperative that students in secondary and post-secondary education know how to use technology effectively by recognizing credible sources and utilizing the correct technology for each situation.

Purpose/Objectives

The purpose of this study was to take inventory of computer usage and attitudes toward the Internet of current students enrolled in college of agriculture courses. Of college students in the classroom today, all had been actively using computers and the Internet by the time they were 16 to 18 years old (Jones & Madden, 2002). Past students studied, while high users of the Internet may not have been exposed to these technologies as early in life as students in today's classrooms who never have experienced a non-Internet world.

Thus, this study aims to determine:

1. The level of computer usage and ownership of students enrolled in a college of agriculture course.
2. The tasks performed online by students enrolled in a college of agriculture course.
3. The attitudes toward the perceived credibility and usefulness of the Internet by students enrolled in a college of agriculture course.

Methodology

To reach these objectives a descriptive survey was utilized. A 40-item instrument measuring Internet experience and usage (23 items), attitude scales toward the Internet (11 items), and demographics (6 items) was utilized. To address instrumentation validity, a panel of experts analyzed the instrument for face validity of the items, and a pilot test was run to ensure construct validity.

For the purposes of this study, Internet usage was defined by the amount of Internet use each week, the number of sites subjects visit, and the activities they perform while online. In this study level of usage was measured through a 13-item researcher-developed scale. Respondents were asked to indicate on a five-point Likert scale how many hours they spent online each day, how many sites they visited in each stint online, if they have ever created a Website, and how often each week they downloaded music, read a blog, instant-messaged, read Facebook/MySpace, watched online videos, shopped online, used search engines, used WebCT, or accessed news online. Respondents were then asked to rank on a five-point Likert scale how often they participate in 10 specific online activities such as downloading music and shopping online. Based upon reliability analysis an overall Cronbach's alpha of .73 was found for these items.

The most common way to measure attitude is through semantic differentials (Eagly & Chaiken, 1993). During the development of such measures, researchers have found that three

factors are usually underlying the scales: evaluation, potency, and activity (Eagly & Chaiken, 1993). The evaluative factor typically accounts for the most variability among scale ratings analyzed and has been identified to represent attitude. The bipolar-adjectives that load in the evaluative dimension like good/bad and pleasant/unpleasant, are thus used in semantic differentials to measure attitudes (Eagly & Chaiken, 1993). Attitude toward the Internet was tested through a set of 11 semantic differential scales (i.e. good/bad, trustworthy/untrustworthy, credible/not credible, beneficial/not beneficial, and accurate/inaccurate) (Table 1). These bi-polar adjectives were placed at each end of a five-point scale. Three out of the eleven attributes were reverse coded to decrease the influence of response layout (Dillman, 2000). The coefficient alpha reliability for the set of attitudinal questions was $\alpha = .70$

Table 1
Example of Scale Used to Measure Attitude toward the Internet

I feel that many Websites on the Internet are						
Good	1	2	3	4	5	Bad
Credible	1	2	3	4	5	Not credible
Unbiased	1	2	3	4	5	Biased
Difficult to understand	1	2	3	4	5	Easy to understand
Not important	1	2	3	4	5	Important
Not interactive	1	2	3	4	5	Interactive
Easy to find	1	2	3	4	5	Hard to find
Beneficial	1	2	3	4	5	Not beneficial
Believable	1	2	3	4	5	Unbelievable
Trustworthy	1	2	3	4	5	Not trustworthy
Accurate	1	2	3	4	5	Inaccurate

Participants in the study were recruited out of two service courses taught in the College of Agricultural and Life Sciences at a large Southeastern Land-Grant University. The courses serve as part of a general education requirement for students across the university and are thus taken to be largely representative student population with a variety of agriculture and non-agriculture majors and backgrounds. A total of 256 students completed the instruments through direct administration in the classroom. Those students who were enrolled in more than one of the courses utilized in the study were instructed to participate in the study only once.

Results

General demographics were calculated from the sample for gender, age, and college rank (Table 2). There were 110 males (43.1%) and 145 female (56.9%) respondents. The majority of respondents were 18-20 years old (56.3%), followed by respondents 21-23 years old (37.9%), respondents 24-27 years old (5.1%), and respondents 28 years or older (0.8%). There were 119 (46.9%) who reported being college juniors, 66 (26%) sophomores, 61 (24%) seniors, and 8 (3.1%) freshmen.

Table 2
Number of Respondents by Age, Gender, and Class Rank

Characteristic	N	%
Age (n=256)		
18-20	144	56.3
21-23	97	37.9
24-27	13	5.1
28+	2	.8
Gender (n=255)		
Male	110	43.1
Female	145	56.9
Rank (n=254)		
Freshman	8	3.1
Sophomore	66	26.0
Junior	119	46.9
Senior	61	24.0

The majority (73.1%, n=187) of respondents indicated being enrolled in the College of Agricultural and Life Sciences, followed by 9.8% (n=25) in the College of Health and Human Performance, 4.7% (n=12) in the College of Business, 3.7% (n=10) in the College of Liberal Arts and Sciences, 3.5% (n=9) in the College of Public Health and Health Professions, 1.6% (n=4) in the College of Design and Construction Planning, .8% (n=2) in the College of Pharmacy, and .4 % (n=1) in the College of Engineering and the College of Medicine, respectively (Table 3).

Table 3
Number of Respondents by College (n=252)

College	N	%
College of Agricultural and Life Sciences	187	73.1
College of Health and Human Performance	25	9.8
College of Business	12	4.7
College of Liberal Arts and Sciences	10	3.7
College of Public Health and Health Professions	9	3.5
College of Design and Construction Planning	4	1.6
College of Pharmacy	2	.8
College of Engineering	1	.4
College of Medicine	1	.4
Undecided	1	.4

Objective 1: The level of computer usage and ownership of students enrolled in a college of agriculture course.

Participants were asked to describe their Internet and computer usage as well as their current methods of getting online. The majority (98.8%, n=253) indicated that they own a personal computer that is with them at college. High speed (55.3%, n=140) and wireless access (37.5%, n=95) were the most indicated methods to access the Internet at home, while on campus the majority use a computer lab (49.8%, n=126) (Table 4).

Table 4
How Participants Access the Internet at Home and on Campus

Access	N	%
At Home (n=252)		
High-speed	140	55.3
Wireless	95	37.1
Dial-up	16	6.3
Computer lab	1	.4
At Campus (n=253)		
Computer lab	126	49.8
High-speed	65	25.7
Wireless	62	24.5

Respondents described the number of hours they typically spent on the Internet each day and the number of sites they visit in each session online. The majority of students (53.5%, n=137) spend 2-3 hours online each day, with 25.4% (n=65) spending one or less hours online (Table 5). The majority of students (51.6%, n=132) indicated visiting three to four sites each session online.

Table 5
Frequency of Time Spent on the Internet Each Day (N=247)

Time	N	%
1 or less	65	25.5
2-3	137	53.7
4-5	37	14.5
5-6	6	2.4
7 or more	10	3.9

Objective 2: The tasks performed online by students enrolled in a college of agriculture course.

Students were asked to report what activities they partake in when online, including using a Web log (blog), Facebook page, MySpace page, or having a personal Website. The majority (89.5%, n=229) did not have their own Website, and 89.1% (n=228) did not have a personal blog. However social networks were used highly amongst the group with 85.2% (n=218) having a page on Facebook. Surprisingly, only 10.5% (n=27) reported having a page on MySpace however (Table 6). Of respondents, 82.4% (n=210) indicated they had never created a traditional

Website.

Table 6
Percentage of Students who Partake in Each Online Activity (N=247)

Activity used	N	%
Have a Facebook Page	218	85.2
Have a MySpace Page	27	10.5
Have a Personal Website	27	10.5
Have a Blog	26	10.1

Students were also asked to indicated on a 1-5 likert scale (1=never to 5= very often) how often they work on programs like WebCT, use search engines, shop on Ebay, watch videos, read blogs, shop online, and download music each week. Search engines (m=4.3, s.d. =.91) and WebCT (m=4.3, s.d. =.90) were utilized the most weekly, followed by reading facebook/myspace (m=3.9, s.d. =1.37), instant messaging (m=3.5, s.d. = 1.52), downloading music (m=2.4, s.d. =1.33), and shopping (m=2.4, s.d.1.10) (Table 7).

Table 7
Mean Level of Internet Activity Based on a 1-5 Scale (1= Never to 5=Very Often) (N=256)

	M	SD
Use a search engine	4.3	.91
Work on WebCT or other online course	4.3	.90
Read Facebook or MySpace	3.9	1.37
Instant message	3.5	1.52
Download music	2.4	1.33
Shop online	2.4	1.10
Watch videos	2.3	1.20
Read a blog	1.9	1.13
Shop/sell on Ebay	1.7	.94

Objective3: The attitude toward and the perceived credibility and usefulness of the Internet by students enrolled in a college of agriculture course.

Participants indicated their level of attitude toward the Internet in general through semantic differentials. The majority of respondents tended to indicate seeing the Internet as good, easy to understand, important, beneficial, believable, credible, and accurate. Due to the nature of the items a summated mean was calculated to gain an overall attitude toward the Internet. The grand mean was slightly positive at 3.2 (SD= .91) on a 1 to 5 scale (1 being more negative and 5 being more positive).

Conclusions and Recommendations

The results indicated that the majority of students enrolled in these college of agriculture courses (98.8%) own a computer as compared to only the two-thirds found by Johnson, Ferguson, and Lester in 2000. This finding indicates that while many students owned computers

in the past, almost all students enrolled in college of agriculture courses may own their own computer. This falls closely inline with recent articles in college teaching publications which discuss the phenomenon that freshmen entering college campuses today are very technology savvy and come to campus with the newest gadgets and computers for their dorm rooms (“Freshmen Arrive”, 2006).

While at home, the majority of students are connecting to the Internet using high-speed (55.3%) and wireless access (37.5%), and while on campus, almost half (49.8%) of the respondents indicated using a computer lab to get online. While this finding is not surprising since many students at this university live in the dorms or in apartments that offer high-speed access free of charge in order to lure in tenants. Nonetheless, this is an important finding to note as many instructors are beginning to use multimedia technologies to support course activities outside the classroom (Firth, Jaftha, & Prince, 2004; Dunn, Thoms, Green, & Mick, 2006; Savage, & Vogel, 1996). Students report having access to technology that is capable of handling such complex tasks online, possibly reducing anxieties due to technology malfunctions (Kelsey, 2000). These students also indicated being users of technology to download audio and video, making it a viable teaching tool for these students. With students’ familiarity with the technology and the software it takes to run multimedia high, it is encouraged that instructors continue to look for ways to incorporate technology into their curriculum.

While many students did not report having a Webpage or a blog, 85.2% did indicate using Websites like Facebook. These findings support the literature that this age group is a heavy user of the Internet for information and entertainment (Eastin, 2001; Fallows, 2004). Facebook is a social-network that was developed for college students while sites like MySpace have catered to younger students in secondary schools. Due to this it is not surprising that these students were heavier users of Facebook over Myspace.

The frequent usage of programs like Facebook offers a unique new teaching opportunity to classroom instructors. Since many students are familiar with such social networking programs and the technology involved, instructors can employ the communication tools in these programs to engage students in a manner comfortable and enjoyable to them. Instructors can utilize these resources to prompt out-of-class discussions and post announcements for students. These social networking sites also offer unique chances for instructors to engage students on a more personal basis and to engage in a new form of “open door policy”. For example, this researcher utilizes Facebook to communicate with students who may not have visited about their upcoming course schedules and may be ignoring email communication. These technologies also offer students a real world example to draw from during discussions on information credibility and online resources. By utilizing technology in the classroom that students are currently engaged in socially, we can begin discussions in the classroom about credibility online and when technology should and should not be used in business settings.

Students reported using search engines and programs like WebCT frequently in their sessions online which also supports the literature that they are using the Internet as a functional tool in their education (Jones & Madden, 2002). It is important to note however, that both courses studied utilize WebCT for communication and grading functions which could have

influenced the high rate of usage by these students. Search engine use is not surprising since many studies have shown that students are using the Internet to research for school projects (Jones & Madden, 2002). This finding is also noted by researchers looking at general website use. Nielson (2000) found when studying usability that many users' first stop on any website is the search box function.

With research showing that many students are utilizing the Internet for projects and classroom assignments, many times at the expense of going to the library (Jones & Madden, 2002), it is important that we understand student's attitudes toward information online. Interestingly, while respondents tended to indicate through semantic differentials that the Internet was easy to understand, important, beneficial, believable, and accurate, their overall mean attitude toward the Internet was only slightly positive, indicating that while the Internet is a tool used in their everyday lives, these students were still cognizant that not everything presented to them is necessarily accurate, credible, or unbiased. This is an area where instructors can continue to stress the credibility and biases present with online information. With new information sources like Wikipedia popping up online, students are drawn to them when working on assignments. While it appears based on these findings they may be slightly aware of the risk of citing such sources, as instructors we must continually have discussions on what constitutes credible, academic work online. As researchers and academics it is recommended that we ourselves have these discussions as to what sources will be sufficient for student work. With the wealth of information online and new sites like Wikipedia, what do we consider academically safe sources?

Future studies should continue to monitor students' usage and attitudes toward the Internet. As this study has shown, more students are relying on the Internet when compared to studies done even in 2000 (Johnson, Ferguson, & Lester, 2000). Thus, we must monitor if this trend will continue or level off. It is also important that we study these populations further to discover who these students are that are not using the Internet as much and do not have personal computers. What makes these students different? Is it their socio-economic status, their backgrounds, their majors?

As more and more teaching techniques embrace new technologies we must be aware of student's prior knowledge and comfort level with these technologies. It is also imperative that we continue to monitor students' level of attitude toward information online. As the Internet continues to touch every aspect of our daily lives, more students will enter post-secondary education with a wide range of knowledge about what the Internet has to offer them when completing classroom assignments. To ensure students utilize these resources effectively and honestly, we must understand what they currently believe. As new technology like blogs, podcasts, and cell phone capabilities increase, we must stay abreast of how our students are utilizing them in and out of the classroom. We can further engage and excite our students about subject matter if we embrace the technology and gadgets they enjoy using outside the classroom.

These findings are only generalizable to other students in this institution. However, they do shed light on trends in Internet usage among this population that can be utilized in future research. Researchers at other institutions are encouraged to conduct similar investigations to see

how these findings differ in different geographic locations. As the technology savvy generations continue to enter higher education we as instructors and researchers must continue to monitor our student's use of the technology to learn what and how to incorporate it into our classroom. It is also imperative that we as academicians set the standards to what our students' attitudes and beliefs on Internet credibility are when doing coursework and work in the business world.

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