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 at an all-time high, information technology use in education has continued to increase. Research has shown that many students are utilizing these materials to search out information and assist with completing class assignments. Many college students have described the Internet as a functional tool that helps them to communicate with professors, conduct research, and access library materials. As more and more students and educators use the Internet as a source for information in the classroom, it is important to monitor students' attitudes and usage 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 explore the current usage and attitudes toward the Internet by students enrolled in college of agriculture courses at the University of Florida. Findings indicate that these students are substantial 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 at 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 continued to increase. By February 2008, 150.47 million Americans were active Internet users (ClickZ, 2008), and one in five Americans revealed that they rely 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 to 29-year-old users find the Internet a good way to get information, compared with 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 that most college freshmen will appear on campus with newer technology than many of the schools themselves have ("Freshmen Arrive," 2006).

With new technology emerging daily, making tools like ipods, cell phones, and laptops easily available, many students report that the Internet and related technology plays an important role in their education (Jones & Madden, 2002). A recent study of teenagers noted that 71% of respondents 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 et al., 2001).

College students have also confirmed technology's influence in their life, 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, conduct 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). 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).

While no current studies were located that look at Internet usage and credibility of students enrolled in agriculture courses, few studies in the past assessed students' computer experiences (Johnson, Ferguson, & Lester, 1999; Johnson, Ferguson, & Lester, 2000a). Johnson et al. (1999; 2000a,) 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 et al., 1999, 2000a). More than 50% of students in the study noted having above average skills in electronic mail, word-processing, and Internet usage (Johnson et al., 2000a). 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, 1999. 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. Field-dependent learners showed more anxiety about the computing process in terms of attitude toward the computer, indicating that learning style of the student can affect the achievement, computer anxiety, and attitude (Wingenbach).

Research has shown that attitude is an important predictor of usage and implementation of technology (Rodgers & Chen, 2002). Although 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 Web site (Eagly & Chaiken).

Courses are continuing to increase their number of required tasks using the Internet, electronic mail, and technologies such as blogging, podcasting, and sites like Second Life (Beeson, 2005; Johnson, Ferguson, Vokins, & Lester, 2000b). 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 explore computer usage and attitudes 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, although frequent users of the Internet, might not have been exposed to these technologies as early in life as students in today's classrooms who never experienced a non-Internet world.

Thus, this study aims to determine:

1. Level of computer usage and ownership of students enrolled in a college of agriculture course.

2. Tasks performed online by students enrolled in a college of agriculture course.
3. Attitudes toward the perceived credibility and usefulness of the Internet by students enrolled in a college of agriculture course.

Methodology

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

For the purposes of this study, Internet usage was defined by previous research as the amount of Internet use each week, the number of sites subjects visit, and the activities they perform while online (Ko, 2001). 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 Web site, and how often each week they downloaded music, read a blog, instant-messaged, read Facebook/MySpace, watched online videos, shopped online, used search engines or WebCT, and accessed news online. Respondents then were 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 questions.

The most common way to measure attitude is through semantic differentials (Eagly & Chaiken, 1993). During the development of this measure, researchers have found that three factors are usually underlying the scales: evaluation, potency, and activity (Eagly & Chaiken). The evaluative factor accounted for the most variability among scale ratings analyzed and was identified to represent attitude. The bipolar adjectives that load in the evaluative dimension, like good/bad and pleasant/unpleasant, are used in semantic differentials to measure attitudes (Eagly & Chaiken). Attitude toward the Internet was tested through a set of 11 semantic differential scales (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 index was $\alpha=. 70$.

Participants were enrolled in one of two service courses taught in the College of Agricultural and Life Sciences at the University of Florida. The courses serve as part of a general education requirement for students across the university and are thus taken to be a 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 enrolled in more than one of the courses used in the study were instructed to participate in the study only once.

Results

General demographics calculated from the sample include gender, age, and college rank (Table 2). There were 145 female (56.9%) respondents, and the majority of respondents were 18 to 20 years old (56.3%). The course was made up of mostly juniors (n = 119, 46.9%) and sophomores (n = 66, 26%).

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, (Table 3).

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

I feel that many Web sites 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

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	.7
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

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: Level of computer usage and ownership of students enrolled in a college of agriculture course.

Participants described their Internet and computer usage. The majority (98.8%, $n = 253$) indicated that they own a personal computer, while high speed (55.3%, $n = 140$) and wireless access (37.1%, $n = 95$) were the most indicated methods to access the Internet at home (Table 4).

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 (53.7%, $n = 137$) spent 2 to 3 hours online each day, with 25.5% ($n = 65$) spending one or less hours online (Table 5). The majority of students (51.6%, $n = 132$) indicated visiting three to four sites each visit.

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

Students reported what activities they partake in when online, including using a Web log (blog), Facebook page, MySpace page, or having a personal Web site. The majority (89.5%, $n = 229$) did not have their own Web site, and 89.1% ($n = 228$) did not have a personal blog, while 85.2% ($n = 218$) had a page on Facebook, and 10.5% ($n = 27$) had a page on MySpace. Of respondents, 82.4% ($n = 210$) indicated they had never created a Web site.

Students were also asked to indicated on a 1-5 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. Weekly, search engines ($m = 4.3$, $SD =. 91$) and WebCT ($m = 4.3$, $SD =. 90$) were utilized the most by respondents (Table 6).

Objective 3: Attitudes toward 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 Internet was seen to be moderately good, easy to understand, important, easy to find, beneficial, believable, credible, and accurate (Table 7). The grand mean for general attitude toward the Internet was 3.2 ($SD = .91$) on a 1 to 5 scale (1 being more negative and 5 being more positive).

Table 4
How Participants Access the Internet at Home and at 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

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

Time (hours)	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

Table 6
Mean Level of Internet Activity (N=256)

Activity	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

Note. Scale: 1 = Never to 5 = Very Often

Table 7
Level of General Attitude Toward the Internet

Attitude	*n*	*M*[a]	*SD*
Beneficial	256	3.7	1.0
Easy to Understand	255	3.6	1.0
Easy to Find	255	3.6	1.1
Good	256	3.5	.90
Interactive	254	3.3	.97
Important	254	3.1	1.0
Believable	256	3.1	.75
Accurate	256	3.1	.77
Credible	256	3.0	.80
Trustworthy	255	2.9	.76
Unbiased	255	2.4	.90

[a] Semantic Differential scale where 1=Not Credible and 5=Credible

Conclusions and Recommendations

The results indicated that the majority of students enrolled in these college of agriculture courses (98.8%) own a computer, more than the two-thirds found by Johnson et al. (2000a). This finding indicates that while many students owned computers in the past, today almost all students enrolled in college of agriculture courses own their own computer. While at home, the majority of students are connecting to the Internet using high-speed (55.3%) and wireless access (37.5%), and at school, almost half (49.8%) of the respondents indicated using a computer lab to go online. This is important as many instructors are beginning to use multimedia technologies that require fast connectivity speeds to support in-class activities at home (Firth, Jaftha, & Prince, 2004; Dunn, Thomas, 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. New technology like podcasts can be used in classrooms with these students with little technology difficulties or anxieties.

While many did not have a Web page or a blog, 85.2% did indicate using social networking sites 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). 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. The frequent usage of social networking sites like Facebook and MySpace offer a unique new teaching opportunity to instructors. Because many students are familiar with these programs and the technology involved, instructors can utilize 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 technologies offer students a real world example to draw from during discussions on information credibility and online resources. Emerging sites like wikis and social networking sites like Second Life are being explored by educators and may also offer new avenues to take the classroom outside of the classroom.

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 indicated the Internet was easy to understand, important, beneficial, believable, and accurate, their overall mean for these items was only slightly positive, indicating that while the Internet is a tool used in their everyday lives, these subjects 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 credibility issues and biases present with online information. With new open-source wikis offering information on a plethora of topics, we must hold discussions in the classroom about the credibility and accuracy of this information when completing course assignments. Many of these sites are good starting points for information, but should not be an ending source. Instructors are encouraged to also incorporate assignments into courses that help student identify what information online is trustworthy.

Future studies should continue to monitor students' usage and attitudes toward the Internet. 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 technologies 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. Future studies must also explore student's attitude toward usage of these entertainment technologies in the classroom. Does utilization of podcasts, Facebook and other technologies actually increase learning?

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.

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