ARE UNDERGRADUATES USING THE INTERNET PRODUCTIVELY?

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ABSTRACT

The Internet is a pervasive component of the student's education experience. An important question, however, is whether the insistence upon Internet use and the availability of access has also led to considerable adverse student e-behavior. As a result, this paper empirically investigates potentially negative student e-behavior. E-behavior is examined by type and volume to ascertain the extent of potential misuse. Results suggest that undergraduates spend a considerable amount of time in non-productive Internet activities. Instant messaging and non-school related surfing are the most prevalent and time-consuming behaviors. In addition, findings indicate that e-behavior varies considerably among academic class. Seniors are less involved and spend less than half as much time as freshmen in negative Internet activities. Finally, results suggest that incidence is relatively consistent among the Spring and Fall semesters.

Keywords: E-behavior, Internet, survey, productivity, instant messaging

INTRODUCTION

Universities and faculty have woven the Internet into the fabric of the student's educational experience. Students utilize the Internet to communicate with faculty, obtain course information, access research data, and so on. An important question, however, is whether the insistence upon Internet use and the availability of access has also led to considerable adverse student e-behavior. Predominant negative e-behavior could include chatroom participation, personal instant messager (IM) use, downloading and/or viewing pornography, Internet gambling, playing games, cybersex, shopping, non-school related surfing (reading sports, checking stocks, and so on), and downloading music/movies (2).

These behaviors have several negative consequences. A Websense study found that accessing pornography, online chatting, gaming, sports, investing, and shopping at work are the leading causes for disciplinary action or termination (7). Moreover, according to the Recording Industry Association of America, an industry trade group, online music swapping has caused music sales to drop (8). As a result, organizations have implemented Internet monitoring. According to a 2001 American Management Association (AMA) survey of 1627 managers, 63% of companies monitor employee Internet connections, 77% record and review employee telecommunications, and 27% have dismissed employees for misuse of the Internet or electronic mail (1).

The value of student IM use can be debated. Once banned as a threat to productivity and security, it is becoming critical to business communication (3). A Jupiter Media Metrix survey of 68,000 individuals indicates that in September 2001, total minutes of IM at work increased to 4.9 billion, a 113% increase in 12 months (4). Osterman Research, Inc. found that in a 2002 study, 43% of respondent companies use IM (6). Moreover, by the end of 2003, more than 90%

of companies are expected to use IM (5). In terms of students, online chatting with friends and family can be viewed either as useful practice for employment or a waste of University bandwidth and student time.

As a result, this survey explores and measures potentially negative student e-behavior. E-behavior is examined by type and volume to ascertain the extent of potential misuse.

RESEARCH DESIGN

This study employs a survey research design. The research was conducted at a private, northeastern U.S. University. A Student Internet Usage survey instrument was developed and administered in the Spring 2002 and Fall 2002 semesters to undergraduate students enrolled in a School of Business course. The courses included a variety of courses such as BIS-310 "Business Information Systems", BIS 335 "System Analysis and Design", ACCT-201 "Introduction to Financial Accounting", ACCT-202 "Introduction to Managerial Accounting", and MSC-413 "Business Policy." A random sample of twelve class sections was selected. Eight different faculty members conducted the classes.

The survey instrument was utilized to collect student demographic data and examine student perceptions regarding his/her Internet behavior. The survey requested that each student estimate the average number of minutes per week that he/she spent on various Internet activities such as participation in chatrooms, shopping, gambling, and so on. The survey was administered during the final weeks of each semester and all surveys were anonymous. Moreover, students were informed that results would have no effect on their semester grade.

Messages were converted from ASCII format into a computer-based database management system to improve the ease of tabulation. A program was written to summarize and filter data.

RESULTS

A sample of 567 usable surveys was obtained. Table 1 indicates that 325 (57%) of the respondents were male and 242 (43%) were female.

TABLE 1
Response Rate By Gender

	Count	Percentage
Male	325	57%
Female	242	43%
Total	567	100%

The response rate by academic class is relatively equally distributed. Table 2 illustrates that 26% of respondents are freshmen, 29% are sophomores, 26% are juniors, and 19% are seniors.

TABLE 2
Response Rate By Academic Class

Class	Count	Percentage
Freshmen	149	26%
Sophomore	166	29%
Junior	144	26%
Senior	108	19%

Responses were first summarized by type of behavior (Table 3). The overall predominate behaviors include IM with friends/family and non-school related surfing. 88% of respondents indicated using IM and 83% indicated surfing. Moderate incidence behaviors include downloading music/movies (64%), shopping (44%) and playing games (43%). The least common behaviors include downloading and/or viewing pornography (14%), chatroom participation (4%), gambling (4%), and cybersex (2%).

TABLE 3
Overall Internet Behavior

Internet Behavior	% of Students	Avg. Min. Per Week
Chatroom	4%	56
IM (with friends/family)	88%	264
Downloading and/or Viewing Pornography	14%	81
Gambling	4%	36
Playing Games (other than gambling)	43%	76
Cybersex	2%	96
Shopping	44%	38
Non-School Related Surfing	83%	114
Downloading Music/Movies	64%	55
Overall Average	98%	434

Responses were further examined to determine, of those students indicating a given behavior, how many minutes were devoted to each activity during a week period. The most minutes per week were devoted to IM with friends and family. Students using IM indicated spending 264 minutes, or approximately 4 1/2 hours per week, communicating with friends and family. The behavior with the second most time expended was non-school related surfing. Students indicated spending 114 minutes, or nearly 2 hours per week surfing. Several behaviors were moderately time intensive. These included cybersex (96 minutes), downloading and/or viewing pornography (81 minutes), and playing games (76 minutes). The least amount of time was devoted to chatrooms (56 minutes), downloading music/movies (55 minutes), shopping (38

minutes), and gambling (36 minutes). Overall, 98% of students indicated at least one behavior. On average, students spend 434 minutes, or 7 1/4 hours per week, using the Internet for non-school purposes.

Behavior incidence was next compared by semester (Table 4). The number of students indicating each behavior was nearly identical for each semester. For example, in the Spring, 88% of students used IM and in the Fall, 87% used IM. All behaviors were within a 4% variance when Spring is compared to Fall. However, when comparing average minutes per activity, considerable variances arise. Although total minutes in the Spring (422 minutes) is slightly lower than total minutes in the Fall (443 minutes), individual behaviors vary considerably. The highest absolute variance is 81 minutes for chatroom participation, 45 minutes for downloading and/or viewing pornography, and 32 minutes for cybersex.

TABLE 4
Behavior By Semester

Internet Behavior	SPRING % of Students	Avg. Min.	FALL % of Students	Avg. Min.	ABS.VAR, Min.
Chatroom	5%	17	3%	108	81
IM (with friends/family)	88%	259	87%	270	11
Downloading and/or Viewing Pornography	14%	56	14%	101	45
Gambling	6%	31	3%	45	14
Playing Games (other than gambling)	45%	71	41%	81	10
Cybersex	2%	111	2%	79	32
Shopping	44%	30	44%	45	15
Non-School Related Surfing	83%	120	84%	108	12
Downloading Music/Movies	62%	50	65%	59	9
Overall Average		422		443	21

Finally, behaviors were examined relative to academic class (Table 5). The number of students indicating chatroom participation, gambling, cybersex, shopping, and non-school related surfing was nearly identical across academic class. For example, only 2% of freshmen, 2% of sophomores, 2% of juniors, and 2% of seniors indicated participating in cybersex. Other behaviors varied considerably across academic class, and in particular, when comparing freshmen to seniors. Several behaviors were less common among seniors than freshmen. The percentage of students using IM with friends and family dropped from 94% of freshman to 82% of seniors. Downloading and/or viewing pornography decreased in each academic class from 21% of freshman to 6% of seniors. Playing games (other than gambling) decreased in each academic class from 60% of freshman to 30% of seniors. And, downloading music/movies decreased in each academic class from 82% of freshman to 50% of seniors.

When comparing average minutes per activity, total minutes decreases considerably by academic class. Freshman, sophomores, juniors, and seniors spend approximately 569, 464, 400, and 247 minutes per week, respectively. Thus, freshmen spend almost 10 hours per week, or more than twice as much time, as seniors (4 hours). The variance is highest in IM (367 minutes for freshmen, 143 minutes for seniors), chatroom participation (172 minutes for freshmen, 8 minutes for seniors), playing games (79 minutes for freshmen, 38 minutes for seniors), and cybersex (302 minutes for freshmen, 14 minutes for seniors). The other behaviors were relatively consistent across academic class.

TABLE 5
Behavior By Academic Class

Internet Behavior	FR %	FR Avg. Min.	SO %	SO Avg. Min.	JR %	JR Avg. Min.	SR %	SR Avg. Min.
Chatroom	4%	172	2%	36	7%	12	4%	8
IM (with friends/family)	94%	367	87%	282	90%	218	82%	143
Downloading and/or Viewing Pornography	21%	64	16%	70	10%	168	6%	19
Gambling	3%	21	4%	69	6%	25	4%	21
Playing Games (other than gambling)	60%	79	43%	103	35%	59	30%	38
Cybersex	2%	302	2%	14	2%	28	2%	14
Shopping	39%	30	48%	37	45%	44	45%	42
Non-School Related Surfing	85%	100	80%	127	85%	136	84%	84
Downloading Music/Movies	82%	59	65%	53	54%	53	50%	53
Overall Average		569		464		400		247

CONCLUSIONS AND FUTURE RESEARCH

Results suggest that undergraduates spend a considerable amount of time in non-productive Internet activities. Instant messaging and non-school related surfing are the most prevalent and time-consuming behaviors. 88% of respondents (spending 4 2 hours per week) indicated using IM and 83% (spending 2 hours per week) indicated surfing. Moderate incidence behaviors include downloading music/movies (64%), shopping (44%) and playing games (43%). The least common behaviors include downloading and/or viewing pornography (14%), chatroom participation (4%), gambling (4%), and cybersex (2%). Overall, 98% of students indicated at least one behavior and students spend an average of 434 minutes, or 7 1/4 hours per week, using the Internet for non-school purposes.

In addition, results suggest that e-behavior incidence is relatively consistent among the Spring and Fall semesters. For example, in the Spring, 88% of students used IM and in the Fall, 87% used IM. All behaviors were within a 4% variance when Spring is compared to Fall. However, when comparing average minutes per activity, considerable variances arise. Although total minutes in the Spring (422 minutes) is slightly lower than total minutes in the Fall (443 minutes), individual behaviors vary considerably. The highest absolute variance is 81 minutes for chatroom participation, 45 minutes for downloading and/or viewing pornography, and 32 minutes for cybersex.

Finally, findings indicate that e-behavior varies considerably among academic class. Seniors are less involved and spend less than half as much time as freshmen in negative Internet activities. The percentage of students using IM with friends and family dropped from 94% of freshman to 82% of seniors. Downloading and/or viewing pornography decreased in each academic class from 21% of freshman to 6% of seniors. Playing games (other than gambling) decreased in each academic class from 60% of freshman to 30% of seniors. And, downloading music/movies decreased in each academic class from 82% of freshman to 50% of seniors. When comparing average minutes per activity, total minutes decreases considerably by academic class. Freshman, sophomores, juniors, and seniors spend approximately 569, 464, 400, and 247 minutes per week, respectively. Thus, freshmen spend almost 10 hours per week, or more than twice as much time, as seniors (4 hours). The variance is highest in IM (367 minutes for freshmen, 143 minutes for seniors), chatroom participation (172 minutes for freshmen, 8 minutes for seniors), playing games (79 minutes for freshmen, 38 minutes for seniors), and cybersex (302 minutes for freshmen, 14 minutes for seniors). The other behaviors were relatively consistent across academic class.

There are two important implications as a result of these findings. One implication is that negative undergraduate e-behavior is common. 98% of students indicated at least one behavior. And, students spend more than one hour per day on non-productive Internet activities. From an academic standpoint, the high prevalence of non-productive usage needs to be examined relative to the bandwidth drain on university telecommunication systems.

A second implication relates to academic class. It appears that although freshmen are the most active misusers (nearly 10 hours per week), misuse declines dramatically by academic class. Sophomores report 7 3/4 hours, juniors report 6 2/3 hours, and seniors report 4 hours per week. It may be that freshmen are the least challenged academically and have more discretionary time. Moreover, the novelty of quick Internet access may decrease over time and/or increasing student maturity may be a factor. Future research is needed to explore which factors are influential and can be manipulated to change freshmen e-behavior.

The limitations of this study are primarily a function of sample size and type of research. Even though responses were relatively equally distributed among academic class and gender, a larger sample size and use of additional universities would increase the robustness of results. The second limitation relates to the self-reported nature of the survey. Students are using recall to estimate activity. Memory may be unreliable and recency effects may occur. In addition, the Hawthorne Effect may be evident. This effect is minimized due to respondent anonymity.

Future research should be directed examining more students and universities to strengthen conclusions. In addition, research needs to the conducted to further examine the causes of the negative behavior and how to mitigate potential effects. Overall, the current results and future research will assist educators in improving the student education experience, maximizing student productivity, and minimizing misuse of the Internet resources.

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