

# A LONGITUDINAL ASSESSMENT OF INSTANT MESSAGING

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## ABSTRACT

*Once seen as non-productive behavior, instant messaging is now becoming an important tool for business communication. Instant messaging results in communication immediacy, promotes team spirit, and reduces telephone expenses. An important question, however, is whether the trend in industry is consistent among our undergraduate population. As a result, this paper empirically investigates instant messaging from a longitudinal perspective. Over 1500 surveys from students enrolled in various School of Business courses were collected during a six consecutive semester (three year) period. Instant messaging was measured by gender, type, and semester. Results suggest that while nearly all undergraduates utilize instant messaging, there are gender differences. In addition, although 95% of students instant message with friends and family, only six percent instant message with faculty. Moreover, undergraduate instant messaging time levels appear to have peaked and are decreasing. However, because undergraduates use instant messaging as primarily a social tool and few organizations have instant messaging policies, it is uncertain whether students have the knowledge to use instant messaging at work in a professional manner.*

**Keywords:** Instant messaging, IM, undergraduates, empirical survey

## INTRODUCTION

Instant messaging is quickly becoming an important vehicle for business communications. According to the Pew Internet and American Life Project May-June 2004 Tracking Survey, 11 million employees in the U.S. use instant messaging at work [5]. Moreover, International Data Corporation predicts that in 2004, companies would spend more than \$300 million on instant messaging software. As a result, Intel Corporation estimates that it will save \$25 million over the next three years by utilizing instant messaging rather than using electronic mail or telephones [4]. In addition, according to an Intel company white paper, instant messaging promotes team spirit, interaction among individuals, and communication immediacy (with minimal cost and management requirements).

Radicati Group, a Palo Alto-based market research firm, estimates that 85% of enterprises in North America use instant messaging, whether for personal or sanctioned purposes [6]. By the end of 2004, there were 42 million enterprise instant messaging users. According to The Radicati Group's Instant Messaging Corporate survey, 50 percent of individuals polled use instant messaging at work, with expectations that 80% of enterprise users will use instant messaging by year-end 2008 [3].

AOL claims that 59% of Internet users use instant messaging and that 27% of instant messaging users utilize instant messaging at work [8]. AOL also states that 29% of instant messaging users

send as many or more instant messages than email messages. Finally, 90% of the 13-21 age group use instant messaging.

Previous research has indicated that instant messaging is the most prevalent and time-consuming undergraduate Internet behavior [1]. In addition, instant messaging varies considerably among academic class. The percentage of students using IM with friends and family is greater for freshman than seniors. Moreover, freshmen spend nearly 4 more hours per week instant messaging than seniors. Finally, Pew found that in the workplace, 32% of college graduates who instant message, also use instant messaging at work [7].

Instant messaging benefits an organization by saving phone call charges and by being faster than email. However, archival of communications, spim (instant messaging spam), lost productivity, viruses, and confidentiality are potential problems. In 2003, for example, there were 500 million instant messaging solicitations or spim [2]. Pew also found that 32% of survey respondents felt that this technology encourages gossip, 29% stated it has been distracting, and 11% note it had added stress to their life [7]. Compounding the problem is that only 20 percent of employers have instant messaging policies, as compared to 80% that have email rules [5].

Of interest to faculty is the utilization of instant messaging with regard to students. It is important to discern if our students are prepared to use instant messaging in a professional manner once they enter into the job market that will likely demand the use of instant messaging. Are student usage levels consistent with reported incidence in business? Do undergraduates use instant messaging for solely social purposes or has it been integrated into the educational process? Does gender affect the level of instant messaging? As a result, this paper explores undergraduate instant messaging from a longitudinal perspective to better describe the current state of instant messaging usage.

## **RESEARCH DESIGN**

This study employs a longitudinal survey research design. The research was conducted at a private, northeastern U.S. University. A Student Instant Messaging survey instrument was developed and administered during a six consecutive (three year) period to undergraduate students enrolled in a School of Business course. The semesters included the Spring 2002, Fall 2002, Spring 2003, Fall 2003, Spring 2004, and Fall 2004 semesters. 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 convenience sample of class sections was selected in order to maximize student participation. The class sections were conducted by a variety of faculty.

The survey instrument was utilized to collect student demographic data and examine student perceptions regarding his/her instant messaging behavior. The survey requested that each student estimate the average number of minutes per week that he/she utilized instant messaging with friends/family and faculty. 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.

Surveys were keyed 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 1577 usable surveys was obtained. Table 1 indicates that 948 (60%) of the respondents were male and 629 (40%) were female.

**Table 1.** Response Rate By Gender

<b>Gender</b>	<b>Percentage</b>
Male	60%
Female	40%
Total	100%

The response rate by academic class is relatively equally distributed among Freshmen, Sophomore, Junior, and Senior classes. Table 2 illustrates that 24% of respondents are freshmen, 25% are sophomores, 26% are juniors, and 25% are seniors.

**Table 2.** Response Rate By Academic Class

<b>Class</b>	<b>Percentage</b>
Freshmen	24%
Sophomore	25%
Junior	26%
Senior	25%

Table 3 depicts usage percentage by gender. During the study period, nearly all students (nine out of every 10) within each gender used instant messaging. Moreover, male usage increased from 89% to 91% of males. Female usage increased considerably more from 89% to 98% of females. Analysis by gender demonstrates a nearly equal percentage for each semester although female usage was generally slightly higher than male usage.

**Table 3.** Usage Percent by Gender

<b>Gender</b>	<b>Spring 2002</b>	<b>Fall 2002</b>	<b>Spring 2003</b>	<b>Fall 2003</b>	<b>Spring 2004</b>	<b>Fall 2004</b>
Male	89%	90%	92%	95%	92%	91%
Female	89%	89%	93%	98%	94%	98%

Table 4 illustrates average minutes by gender. Results indicate that during five of the six semesters, females spent more time instant messaging than males. Females utilized instant messaging between 10 minutes to 4 ½ hours per week more on average than males. During the Fall 2003 semester, for example, males utilized instant messaging for 245 minutes while females averaged 510 minutes. However, during the six-semester time frame, male minutes increased from 211 to 241 (14% increase) while female minutes decreased from 327 to 223 (32% decrease).

**Table 4.** Average Minutes by Gender

<b>Gender</b>	<b>Spring 2002</b>	<b>Fall 2002</b>	<b>Spring 2003</b>	<b>Fall 2003</b>	<b>Spring 2004</b>	<b>Fall 2004</b>
Male	211	254	280	245	246	241
Female	327	294	338	510	256	223

Instant messaging was next examined by category (Table 5). The overall predominate type of instant messaging (both as a percentage of students and by volume of time) is with friends or family. 95% of undergraduates reported utilizing instant messaging an average of 276 minutes (4 ½ hours) per week with friends or family. Only six percent of respondents indicated using instant messaging an average of 50 minutes (less than one hour) per week with faculty. Overall, 95% of students indicated using instant messaging.

**Table 5.** Instant Messaging by Category

<b>Category</b>	<b>Average # of Minutes Per Week</b>	<b>% of Students</b>
With Friends or Family	276	95%
With Faculty	50	6%
Overall with Friends, Family, or Faculty	277	95%

Finally, usage minutes were analyzed by semester (Table 6). The quantity was further segmented by category to determine any potential longitudinal patterns. The amount of instant messaging with friends or family progressively increased 34% (from 4 1/3 hours to 5 3/4 hours) during the first 4 semesters but steadily decreased by 32% (to less than 4 hours) during the last two semesters. There appears to be no pattern with respect to the amount of instant messaging with faculty. Overall, however, total minutes appear to have peaked and are now decreasing to a level below that of the first study semester. In the first semester (Spring 2002), students indicated using instant messaging for 262 minutes per week. The minutes increased each semester and reached its highest point in the fourth semester at 348 minutes. Minutes then decreased to 235 during the sixth semester (Fall 2004).

**Table 6.** Average Minutes by Semester

<b>Category</b>	<b>Spring 2002</b>	<b>Fall 2002</b>	<b>Spring 2003</b>	<b>Fall 2003</b>	<b>Spring 2004</b>	<b>Fall 2004</b>
Friends/ Family	259	270	303	346	246	234
Faculty	86	42	19	24	127	29
Overall	262	270	305	348	251	235

### **CONCLUSIONS AND FUTURE RESEARCH**

Results suggest that nearly all undergraduates use instant messaging. 95% of respondents reported utilizing instant messaging an average of 276 minutes (4 1/2 hours) per week with friends or family. Six percent of students indicated using instant messaging an average of 50 minutes (less than one hour) per week with faculty.

Analysis by gender demonstrates that the percentages of males and females using instant messaging are nearly equal. Throughout the six semesters, male usage increased from 89% to 91% of males. Female usage increased from 89% to 98% of females. In terms of minutes, during five of the six semesters, females spent considerably more time instant messaging than males. Females utilized instant messaging between 10 minutes to 4 1/2 hours more per week on average than males. The largest variance occurred during the Fall 2003 semester when males utilized instant messaging for 245 minutes per week while females averaged 510 minutes. Interestingly, however, during the six-semester time frame, male minutes increased from 211 to 241 (14% increase) while female minutes decreased from 327 to 223 (32% decrease).

From a longitudinal perspective, findings indicate that undergraduate instant messaging minutes have peaked and have now decreased to a level below that of the first study semester. In the first semester (Spring 2002), students indicated using instant messaging for 262 minutes per week. The minutes progressively increased each semester and reached its highest point in the fourth

semester at 348 minutes. Minutes then steadily decreased to 235 during the sixth semester (Fall 2004).

There are several important implications as a result of these findings. One implication is that undergraduate usage is not consistent with workplace usage (as identified in previous studies). 95% of undergraduates utilize instant messaging while only 50% of individuals in the workplace use instant messaging. As a result, students will likely have the necessary experience upon graduation to fit into the new instant messaging workplace. However, because undergraduates use instant messaging as primarily a social tool and few organizations have written instant messaging guidelines, it is uncertain whether students have the knowledge to use instant messaging at work in a professional manner.

A second implication is that instant messaging serves primarily a social role for undergraduates and is not fully integrated into the educational process. The overall predominate type of instant messaging (both as a percentage of students and by volume of time) is with friends or family while only six percent indicated using instant messaging with faculty.

A third implication is that gender may play a role in instant messaging. Although nearly equal percentages of males and females use instant messaging, during the six-semester time frame, male minutes increased by 14% to 241 per week while female minutes decreased by 32% to 223 per week.

Finally, findings suggest instant messaging may have reached a peak and will continue to decrease. This is positive news for information systems administrators in that the undergraduate instant messaging bandwidth drain may be decreasing. It is uncertain, however, why the minutes per week are decreasing. One possible cause could be newer substitution communication technologies such as cell phones.

One limitation of this study is a function of sample size. A larger sample size and use of additional universities would increase the robustness of results. Another limitation relates to the self-reported nature of the survey. Students are using recall to estimate activity thus 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 toward examining whether students understand the professional aspects of using instant messaging in the workplace. Findings from such research would be useful in determining whether faculty need to implement or reevaluate instruction and/or academic usage of instant messaging. In addition, further research will need to be conducted to determine why female instant messaging behavior differs from that of males and whether this behavior is beneficial or detrimental in the workplace.

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