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ABSTRACT

Instant Messaging software has increasingly been used as an alternative communications platform in many organizations. Although Instant Messaging (IM) began as a personal tool for online communication, the software has now been implemented in many organizations and workplaces. The usefulness of IM software has been shown in literature to be positive, increasing efficiency and productivity in the workplace.

This paper explores the perceptions of IM software users in the workplace. We solicited opinions to verify the claim of IM's effect on efficiency and productivity. We also discuss the limitations and negative effects of IM. A pilot survey and data analysis techniques provide the measurement of IM software's worth or liability to an organization. The results show what components of IM software are most commonly used and what limitations software places on the users. We also provide recommendation of possible enhancements to IM software in this paper.

INTRODUCTION

While widespread IM use did not take off until the mid-to-late-1990s, IM's roots trace back to the late-1980s at MIT's Computer Science department. Administrators of the department's workstation and server network needed a way to quickly send system status notifications to the network's users. In 1988 a system called Zephyr was deployed to meet this need. Initially, users could subscribe to different types of messages, such as those concerning a particular server or those from a particular user. However, students soon began using Zephyr to send messages amongst themselves and its popularity grew (Rapp 2002).

In 2003, 90% of large US organizations had one or more employees using IM (Osterman 2003). However, business use of IM required additional features not available through public IM applications. This need resulted in the introduction of Enterprise-IM systems. These systems grant employers more control of IM usage and provide increased security and privacy of messages transferred, in addition to providing enhanced message-logging capabilities.

In this paper, we surveyed recent studies that examine the usability of IM in the workplace. To verify the findings, a focus group survey is conducted. Our findings are consistent with the literature with a few exceptions. In particular, we found that IM has been used extensively and productively in an organizational setting. However, IM does have a cannibalizing effect on other Internet-based technology such as e-mail. Also, IM has enabled co-workers to socialize online. Further research is suggested to verify these inconsistencies.

LITERATURE REVIEW

The migration of IM to the workplace prompted a variety of studies concerning its uses, adoption patterns and rates, benefits, and hazards, among others. The findings of these studies provide insight into the role IM plays in an organization.

One of the first significant and frequently cited (Isaacs et al. 2002; Muller et al. 2003; Voida et al. 2004; Vos et al., 2004) studies focusing solely on organizational IM usage was conducted by Nardi, Whitaker, and Bradner in 2000. This ethnographic study investigated the IM use of 20 people from three different organizations. The researches used a combination of interviews, observations, and IM logs to draw conclusions regarding the type of communications IM is used for and the motivations for using IM to communicate. They concluded that IM successfully supports informal communication between employees. The types of informal communication identified included quick questions and clarifications, coordination and scheduling, organizing impromptu meetings, and keeping in touch with family and friends.

Nardi, Whitaker, and Bradner also reasoned that IM offers advantages over other types of communication during these informal conversations. For instance, based on user comments it was concluded that IM afforded users more control over workplace interruptions than phone or face-to-face communication. Users stated they felt obligated to respond to phone or face-to-face requests. Conversely, they felt that ignoring an IM would not offend the sender.

It was also argued that IM provides more opportunity for multitasking communication. For example, users felt they were better able to monitor IM while simultaneously carrying on a phone or face-to-face conversation as compared to simultaneous e-mail and face-to-face or phone and face-to-face conversations.

Another important finding of the Nardi, Whitaker, and Bradner study was that IM creates an enhanced social connection among its users. Users reported that they will often greet one another by sending simple "hello" messages without exchanging any real information. This, combined with the fact that IM's presence awareness feature allows users to see when people sign-on and sign-off, led the researches to conclude that IM promoted a feeling of closeness among its users.

Other researches have conducted studies aimed at different areas of organizational IM usage. De Vos, Ter Hofte, and De Poot (2004) conducted a seven month study investigating the adoption of an IM system in an organization. This study involved the 104 employees of a Dutch knowledge worker organization. Data for the study was collected through surveys, interviews, and communication logs. The researchers found that the formal introduction of IM in the organization resulted in a fourfold increase in the number of IM conversations as well as a fourfold increase in the number of users. They also discovered several factors that impact the likelihood an individual will choose to use IM. These factors include 1) people that have used IM in the past are more likely to use IM when its introduced in an organization, 2) the more useful an individual believes IM to be, the more it will be used by that individual, 3) the more compatible IM is with an individual's work, the more it will be used, 4) the lower an individual's self-efficacy the less likely an individual is to use IM, 5) peer pressure from social-contacts at work increase a person's probability of using IM more than peer pressure from other non-social work contacts and 6) business mobile phone users

are less likely to use IM. Further, the researchers found no evidence that IM use is a substitute for e-mail use.

Muller, Raven, Kogan, Millen, and Carey (2003) conducted a similar study that supports some of the findings of the De Vos, Ter Hofte, and De Poot study but contradicts others. This study surveyed 463 users across three organizations. In analyzing the results, the researchers focused on two areas. First, they evaluated various IM usage characteristics. This analysis revealed that IM reduced the use of other forms of communications including e-mail (which contradicts the De Vos, Ter Hofte, and De Poot study), voicemail, telephone, teleconference, pager, and face-to-face communications as reported by survey respondents. The survey also identified that the most frequent reason for sending an IM was to get a quick response. Other top reasons included to avoid the phone, to know who is currently available, and to clarify a question. Further, Muller, Raven, Kogan, Millen, and Carey determined team members, managers, and other departments were reported as the most frequent IM recipients.

The second focus of their study analyzed how IM usage characteristics change as IM experience increases. It was discovered that savings in use of other communication channels is realized within the first three months of using IM. As experience increases, additional savings do not occur. It was also found that IM usage (measured by number of IM sessions per day and the number of interchanges per session) increases as experience increases. The analysis further revealed that as IM experience increases so do the reasons for using IM.

In contrast to the studies discussed so far, Isaacs, Walendowski, Whitaker, Schiano, and Kamm (2002) took a more quantitative approach to identifying organizational IM usage characteristics. The researchers analyzed the logs of 21,000 IM conversations by 437 different users in a single organization. Their evaluation of these logs revealed several interesting and relevant details. First, they found that each user had an average of 1.7 IM conversations each day with the average conversation lasting four minutes twenty-three seconds. They also discovered that switching to another form of communication in the middle of an IM conversation was not as common as other studies found. Only 15.6% of conversations ended in switching to either a telephone conversation (6.8%) or a face-to-face conversation (8.8%).

The analysis of the logs also brought to light some characteristics related to IM and multitasking. The logs analyzed tracked when users moved out of the IM window. It was found that this occurred an average of 3.8 times per conversation and that it happened at least once in 85.7% of all conversations. The researchers noted that this is not a comprehensive means of determining multitasking, as a user can multitask without leaving the IM window. However, it does provide a general measure. The study also revealed that having multiple IM conversations simultaneously was rare. This occurred only during 4.3% of the conversations analyzed.

Isaacs, Walendowski, Whitaker, Schiano, and Kamm also evaluated the differences between frequent IM users and light IM users. Their analysis found that conversations which included two light users lasted longer than conversations that included at least one frequent user. Further, it was found that conversation involving at least one frequent user had a quicker pace (more messages sent over a shorter period of time) than those between two light users. It was also revealed that frequent IM users multitasked more than light users.

A final aspect of the study concerned what IM was used for in the organization studied. The researchers discovered that 27.8% of conversations were simple questions. Further, 30.8% of the conversations included some discussion of scheduling and coordination. IM was used relatively little for social talk. Only 13% of conversations included some social exchanges, and only 6.4% of conversations were exclusively personal. Discussing work-related issues was by far the most common use of IM in the organization studied. This was 62% of all conversations.

RESEARCH OBJECTIVE AND METHODOLOGY

The main purpose of this study is to verify the research findings identified in the literature review. The method of research was a focus group survey. The survey questions were derived from key aspects of the literature review. Specific questions were developed to concentrate on the areas that we aimed to substantiate or call into question. One such area tested was whether IM software is used for informal communication (e.g., quick questions and clarifications, coordination and scheduling, organizing impromptu meetings), as Nardi, Whitaker, and Bradner reported in their 2000 study. We also wanted to address the findings of Muller, Raven, Kogan, Millen, and Carey (2003), who found, contrary to the De Vos, Ter Hofte, and De Poot (2004), that IM is a substitute for other forms of communication including e-mail.

Other survey questions were derived from curiosity. Specifically, this study is intended to correlate data to provide a more complete understanding of how IM software is used in a workplace environment. Further, it was desired to find what functions of IM software are actually used. The discovery of what functions are used, desired, or not needed provides insight for future IM software development. Other information gathered and analyzed by this study may clarify an organization's decision to implement IM.

The subjects consisted of IM software users in various work capacities. These capacities included such roles as application developer, teacher, and secretary. Further, the survey included both closed- and open-ended questions. The open-ended questions were included with aim of supporting the closed-ended responses as well as to provide insight into organizational IM use that is not evident from the closed-ended responses alone.

Two organizations were selected and allowed employees to complete the survey. The first organization was a school district. The school district consists of several buildings that are spread across two towns. The towns are separated by about 10 miles. Various faculty members are required to communicate daily with other buildings within the same town or in the neighboring town. The school district is small and in a rural setting, with personnel mainly consisting of teachers and support staff.

The second organization was an application development group responsible for developing and maintaining various computer applications for a state government agency. The makeup of this group consists mainly of application developers.

The survey itself was available online for one week for potential respondents to submit their perceptions of IM software as it relates to their work experience. A clear message of the work experience was stressed to mitigate the potential for confusing personal use of IM with workplace use of IM. Further, any submitted surveys deemed as untrustworthy were discarded from the sample group.

The data gathered from the survey also included the gender, age, education level, job title, user level of IM software, and general computer knowledge of each user. To assess the user level of IM software and general computer knowledge we used a scale of 1 to 5, where 1 was a novice or inexperienced user and 5 was an expert user. Above all, the aim of the survey was to query users on their perceptions of IM's impact on efficiency, productivity, and communication. The analysis then correlated this information by subgroups of the complete focus group. Potential subgroups for this study included age, gender, job title, education level, user level of IM software and general computer knowledge. The correlations and validation or invalidation of the literature review were determined using unary and multi-variant statistical analysis on the data collected from the focus group.

CLOSE-END QUESTIONS DISCUSSION

The online survey yielded 36 respondents. A brief breakdown of the respondent demographic characteristics is provided in Table 1 and Table 2 below.

Category	Count	Percentage
Sex		
Male	11	30.6
Female	25	69.4
Total	36	100
Age		
18-25	3	8.3
26-30	8	22.2
31-35	5	13.9
36-40	3	8.3
41-45	4	11.1
46-50	7	19.4
51-55	4	11.1
56-60	2	5.6
61-65	No data	No data
66-70	No data	No data
71-75	No data	No data
76-80	No data	No data
81-85	No data	No data

Table 1. Brief Survey Demographics

Category	Count	Percentage
Education Level		
High School	3	8.3
Associate's Degree	2	5.6
Bachelor's Degree	17	47.2
Master's Degree	14	38.9
Doctorate	No data	No data

Table 2. Educational Level Results

The survey also asked several questions concerning the different functions of IM software used. One question asked respondents to select from a list which IM application(s) they use. Respondents were also given the option of reporting an application not included in the list provided. Another question asked what functions built into IM software the respondents used. The results of these questions are found in Table 3.

Category	Count	Percentage
IM Software Used		

AOL Instant Messenger	18	50.0
Yahoo! Messenger	5	13.9
MSN Messenger	17	47.2
Gaim	0	0
Trillian	0	0
ICQ	0	0
Other*	1	2.8
*Windows Messenger	1	2.8
IM Software Uses		
Text Messaging	34	94.4
Video Conferencing	3	8.3
Audio/Video Communication	4	11.1
File Transfer	5	13.9
White board	3	8.3
Screen Sharing	1	2.8
Other	0	0

Table 3. IM Software Information

The most popular IM software package reported was AOL Instant Messenger with 50% of respondents. It was followed closely by MSN Messenger with 47.2%. Yahoo! Messenger was the third most popular with 13.9%. The percentages are calculated by the count of each software package as a percentage of the number of respondents, 36. Text messaging was ranked as the most commonly used function of IM software with a percentage of 94.4%.

A follow-up question to the IM software users was whether or not respondents use IM software to determine if a colleague was present at work. It was then desired to see what medium of communication respondents use if they discovered a particular colleague was present. Table 4 shows the results of these two questions. An interesting item presented in this table is that 75% use IM to see if a colleague is at work, but only a 47.2% use IM to communicate with them. However, 38.9% of respondents surveyed revealed the content of the message that needs to be communicated determines which medium of communication they use. The most incredible ratings were the telephone, e-mail, and face-to-face results, coming in at 5.6%, 5.6%, and 0% respectively. This relates that even though IM users discover a colleague is present, they choose not to telephone, e-mail, or initiate a face-to-face conversation. It is suggested that future research address "Depends on what needs to be communicated" as a separate question allowing it to be analyzed deeper.

Category	Result	Count	Percentage
Use IM to see if colleague is at work	Yes	27	75
	No	9	25
If colleague is present do you...	IM them	17	47.2
	Telephone them	2	5.6
	Meet face-to-face	0	0
	E-mail them	2	5.6
	Depends on what needs to be communicated	14	38.9

Table 4. IM Software and Colleagues

Table 4 helps support the findings that telephone communication is used very little when IM is available. Sixty percent of respondents reported they use the telephone less often when IM is available, while 3% say they use the telephone more often, and 37% say that IM has no effect on their use of the telephone for communication when IM is available.

When looking at Table 5 and Table 6 it is shown that 33.3% of those surveyed use face-to-face communication less often when IM is available, but in Table 7 we see that 80.6% believe that face-to-face communication is more efficient than IM. It is interesting that while one-third of the respondents report they use face-to-face communication less when IM is present, 80.6% believe face-to-face communication is more efficient. We would expect that the efficiency of IM compared to face-to-face conversation would be closer in line with the percentage that uses face-to-face communication less when IM is available. Our data cannot tell us why there is such a discrepancy, but this is a topic that merits further research.

Table 5 also provides evidence that goes against the findings of De Vos, Ter Hofte, and De Poot (2004). In this research, it was determined that IM is not a substitute for e-mail communication. However, our research clearly shows that when IM is available, 60% of respondents use e-mail less often. This data, however, does support the Muller, Raven, Kogan, Millen, and Carey (2003) study which found that IM is a substitute for other forms of communication including e-mail and the telephone. Our research found that 60% use the telephone less often and 60% use e-mail less often when IM is available.

Category	Result	Count	Percentage
When IM is available I use the telephone	Less often	21	60.0
	More often	1	3.0
	IM has no impact on telephone use	13	37.0
When IM is available I use face-to-face conversations	Less often	12	33.3
	More often	1	2.8
	IM has no impact on face-to-face conversations	23	63.9
When IM is available I use e-mail	Less often	20	60.0
	More often	0	0.0
	IM has no impact	15	40.0

Table 5. IM Effects on Other Communication Media

Category	Response	Count	Percentage
E-mail	Yes	26	72.2
	No	10	27.8
Telephone	Yes	21	58.3
	No	15	41.7
Face-to-Face	Yes	7	19.4
	No	29	80.6

Table 6. Is IM Software More Efficient Than Other Media?

The subject of what IM software is used for was also targeted as a research topic. It was found that the most popular reasons for using IM software were for getting a quick response (88.9%) and getting answers to simple questions (77.8%). Other uses and their percentages are in Table 7. As described earlier, the findings indicate that 60% of respondents use e-mail less often when IM is available. This, in conjunction with the findings that the top uses of IM software are to get a quick response and get answers to simple questions, suggest that the timeliness of IM is an important incentive for use. This data supports the Nardi, Whitaker, and Bradner (2000) study that found IM was used for informal communications, as well as the Muller et al. 2003 study.

The Isaacs, Walendowski, Whitaker, Schiano, and Kamm (2002) study concluded that IM is used relatively little for social talk. Our study found that 41.7% use IM to socialize at work. While this is still a minority, it does imply a significant level of social IM use. Based on this finding, it is suggested that future studies investigate this area further.

Category	Response	Count	Percentage
Use IM software to...	Get a quick response	32	88.9
	Socialize	15	41.7
	Schedule impromptu meetings	12	33.3
	Avoid the telephone	14	38.9
	Avoid face-to-face conversation	6	16.7
	Get answers to simple questions	28	77.8
	Discuss detailed work items	8	22.2

Table 7. Specific Uses of IM Software

Another question focused on what respondents do while using IM software. In other words, does IM prevent users from multi-tasking or does it allow them to accomplish more work while communicating with colleagues. Table 8 shows the results of this question. It is clear from the data that it is possible for IM users to do other work while instant messaging. Nearly 81% reported so. One-third of the respondents reported they conduct telephone conversations while using IM, and 25% reported to have face-to-face conversations while using IM. It is concluded that IM's ease-of-use, minimal need for desktop real estate and auditory and pop-up alerts allow users to neglect the IM software until attention is required, thus providing the opportunity for users to perform other work. This data supports the Nardi, Whitaker, and Bradner (2000) study that found IM facilitates multitasking.

However, the collected data contradicts the Isaacs, Walendowski, Whitaker, Schiano, and Kamm (2002) study that found simultaneous IM conversations were rare. In our study 61.1% of respondents reported they have instant messaging conversations with others while using IM software.

Category	Response	Count	Percentage
While using IM software I also...	Have IM conversations with others	22	61.1
	Have telephone conversations with others	12	33.3
	Have face-to-face conversations with others	9	25.0
	Perform other work	29	80.6

Table 8. IM Software and Multi-tasking

The next two questions delved into the feelings of IM software users. First, it was asked how users felt when they did not receive a response to an IM they sent. Almost 49% of respondents said that they felt indifferent; however, when we asked if they felt obligated to reply to an IM, 77.8% said yes. The complete results are in Table 9. The fact that 77.8% of respondents felt obligated to respond to an IM compared to a 48.6% feeling of indifference when a response was not received seems strange. It was expected that a feeling of annoyance would be more closely tied to how many feel obligated to respond to an IM. However, although most feel obligated to respond, most feel indifferent when they do not receive a response. Nardi, Whitaker, and Bradner (2000) found that ignoring an IM is not offensive. In our study the data suggests that this is true for 48.6% of our respondents, while the remainder do have some feeling of annoyance.

Category	Response	Count	Percentage
How do you feel when you do NOT receive a reply?	Indifferent	17	48.6
	Slightly Annoyed	13	37.1
	Annoyed	4	11.4
	Greatly Annoyed	1	2.9
Do you feel obligated to respond to messages?	Yes	28	77.8
	No	8	22.2

Table 9. IM User Feelings

Several questions were also asked targeting potential downsides of IM software. One question asked users how frequently they were distracted by IM. According to our respondents, 8.3% felt they were frequently distracted from work and 16.7% felt they were somewhat frequently distracted. The majority of respondents answered that they were never (16.7%) or infrequently (58.3) distracted. This finding further supports the finding that majority of users perform other work while using IM. Table 10 shows the complete results from this question.

Category	Response	Count	Percentage
How often do you feel distracted from work by instant messaging	Never	6	16.7
	Infrequent	21	58.3
	Somewhat frequently	6	16.7
	Frequently	3	8.3

Table 10. IM Software Distraction

The final questions of the survey touched on the main purpose for conducting this research. It was desired to find answers to three main questions that we felt were important to any research done on the subject of IM. The questions were: "Overall, do you believe instant messaging is an effective means of communication?," "Overall, do you believe that instant messaging makes you more productive? ," and "Is instant messaging essential to your job?" The response to the first question fit well into the other data gathered suggesting that IM was a more efficient medium for communication than e-mail and telephone (Table 6). But, it was somewhat puzzling that only 61.1% of respondents believed IM makes them more productive (Table 11), while 80.6% perform other work while using IM software (Table 8).

The most interesting result of our survey pertains to the nine (Table 12) respondents that believe instant messaging is essential for performing their job. Although only representing 25% of our survey respondents, seven of these respondents can be directly related to the school district surveyed. The remaining two can be logically placed: the repairman for the school district (why would an application development group need this position?) making eight of the nine from the school district, and the final unknown, the Technology Coordinator to the application development group. See Table 12. This shows that 88.89% of the respondents that believe instant messaging is essential to performing their jobs work for the school district.

To explore this question a contact within the school district was telephoned. When asked why the school district relies on IM software, the response was that the school district is a consolidated school district that has several buildings in two towns. Many of the district's personnel must communicate with counterparts in other buildings that may be in the same town or in the neighboring town. To place a phone call to the other town would incur long distance telephone charges. Using IM has cost-advantage in this situation. They also use IM software to share files directly, instead of posting them to network folders which saves them time, prevents accessibility issues, and also prevents unauthorized viewing of documents by personnel and students associated with the school district.

Category	Response	Count	Percentage
Overall, do you believe instant messaging is an effective means of communication?	Yes	33	91.7
	No	3	8.3
Overall, do you believe instant messaging makes you more productive?	Yes	22	61.1
	No	14	38.9
Is instant messaging essential to performing your job?	Yes	9	25.0
	No	27	75.0

Table 11. IM Software Key Questions

Job Category	Is instant messaging essential to performing your job? *1 signifies a 'Yes'
District Librarian	1
Technology Coordinator	1
Middle School Library Aide	1
Principal at middle school and elementary school	1
reading teacher	1
Elementary teacher	1
Elementary school secretary	1
Teacher	1
Machine repairman, repair machine tools	1

Table 12. IM Essential for Performing Job, Breakdown by Job Category

OPEN-END QUESTION DISCUSSION

When comparing the efficiency of IM as a communication tool to e-mail, respondents were asked to provide the reason they felt IM was less efficient. While reasons varied, many made reference to the permanency of e-mail as an advantage over IM. Another common reason that respondents provided describing why e-mail is more efficient than IM was based on perceived increased volume of interruptions with IM.

Respondents were also asked to compare the efficiency of IM to telephone and face-to-face communications. Like the e-mail comparison, those that felt IM was less efficient than either telephone or face-to-face communication were asked to provide a reason for such a response. While the comparisons were asked in separate questions, the responses were quite similar. The most common reason was that telephone and face-to-face communications have less risk of miscommunication than written IMs.

The other significant commonality was that respondents believed that the most efficient means of communication (IM, telephone, or face-to-face) is dependent on the complexity of the information being communicated. IM users were also asked to give their opinion on what makes IM an effective or ineffective means of communication. An overwhelming percentage (92%) of respondents believed IM to be an effective communication tool. The most commonly cited reason for this was that users believe IM is quick. Many respondents also reiterated their opinion that IM is more effective for simple communication.

The reasons varied for the few who felt IM was not an effective means of communication. One respondent believed IM to be ineffective because it did not provide a means for documenting the communication. Another felt that IM was ineffective because of unnecessary messages that accompany a simple question. Another reason given for its ineffectiveness was that it resulted in an increased risk of miscommunication.

The survey also queried users if they believed IM made them more productive. A majority (61%) believed this to be the case. As a follow-up to this question, respondents were asked to describe why IM does or does not make them more productive. Interestingly, those that felt IM had a negative impact on their productivity also cited multitasking as a reason.

Finally, those completing the survey were asked what functionality should be added or taken away from IM to make it more useful. Only three of the 36 respondents requested functionality to be removed. One requested IM to be text-messaging only. Another requested the radio function be removed from Yahoo! Messenger. It was also suggested that commercials and ads be removed.

There were more suggestions of functionality to be added. Several stated they would like video and voice communication capabilities added. Others recommended additional functionality for saving and organizing IM conversations. Several others used this question to express their concern that IM was becoming too complicated.

CONCLUSION

This survey study compares the use of IM software in a public school setting to a technology-based group. The results have shown that while IM is useful in both organizations, it is the school district that truly exploits the software's potential.

Initially, the most interesting aspect of the research was the discovery that a school district seems to outpace the use and adoption of an application development group. Yet, upon further inspection of this, we discovered that it was almost necessary for the school district to find a cheap and effective medium of communication. Due to their geographical locations and budgetary constraints the school district implemented the use of IM to create a cost savings. The application development group does not have the geographical distribution as the school district. With this information in mind, we believe that out of necessity, the school district had more incentive to use IM software than the application development group.

The research also supported several existing findings by Nardi, Whitaker, and Bradner and Muller, Raven, Kogan, Millen, and Carey. However, we did find discrepancies with our data for Isaacs, Walendowski, Whitaker, Schiano, and Kamm and De Vos, Ter Hofte, and De Poot. It is important to note that this is a pilot study, and if the number of respondents were to increase the conclusions drawn may be different. Yet, we believe that the respondents to our survey adequately represent the two organizations selected.

IM software and its uses are greatly dependent on the context for which they are used, as seen in our results. If they are used as an enabler for some specific goal, then it could be said that the software is more widely used by the organization. The topic of IM software and organizational use has also become important from a security standpoint. Therefore, future study and research is required to determine the best approaches towards educating IM software users of security risks and to determine what IM software developers need to incorporate into their designs to meet the demands of the market.

Through further diligent research, we may see these numbers fluctuate over time, as we have seen from the literature review and now our research data. This makes continued and future study of organizational IM use important for the following reasons. The further research will allow organizations to adapt and conform to accepted best practices and security measures for use of IM software within the organization. The needs of the users can be more adequately addressed by sampling the population of users and simply asking what features of IM software are still needed and what features are no longer required. Study can also prove or disprove the ability of IM software to create a cost savings over other forms of communication. It also may be beneficial to study how IM can be coupled with various other applications to extend or enhance their functionality. Finally, further study may help organizations design a system of management for IM software.

The research suggests that IM is becoming increasingly successful in efficiently and effectively communicating users messages than previous studies suggest. The adaptation of IM software has even reached our public school districts as they face budgetary constraints. The schools are able to use IM software to help meet the constraints of budgets, but still maintain their ability to effectively and efficiently communicate either within the same building, across town, or, in the case of our respondents, with another town entirely.

It is our conclusion that IM software has a general positive affect on an organization. Depending on the motivation of an organization, IM software may be used to achieve goals of meeting budgets, communication needs, and information sharing and dissemination. Yet, our research supports previous findings and also calls into question others. For this reason, we can safely say that IM software use in organizations is not completely understood or known. This fact requires that future study of this topic be conducted.

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