

INVESTIGATING THE USE AND USEFULNESS OF INSTANT MESSAGING IN AN ELEMENTARY STATISTICS COURSE

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Instant messaging is a way of sending short messages to other users who are currently online in “real time” and is a rapidly growing medium by which many students are choosing to communicate with each other. A pilot study into the use of instant messaging was carried out with two large elementary statistics classes. This study will report back on the virtual office-hours service, advantages and disadvantages of online study groups and reflections on how instant messaging could change help-support services for students studying statistics.

INTRODUCTION

Instant messaging enables users to have instant real-time communication with friends, family and colleagues via the Internet. These private text-based informal “chats” can be between two or more participants who are simultaneously online. IM messages are normally short and sent line-by-line, making the conversation more like a telephone conversation than exchanging letters. Users create a list of people they wish to communicate with and can see information about their availability such as whether or not they are currently logged on and able to receive instant messages. If a contact is online, further information about their current activity is available, such as “busy,” “away,” “out to lunch” or custom descriptions. In addition to sending and receiving text-based messages, users may also transfer files, have voice and or video conversations, send text messages to cell phones, share a whiteboard or other applications and play games. Conversations can also be archived. People are using IM in numerous and diverse ways from social interaction to work-based collaboration. They are often multi-tasking while instant messaging and frequently engage in multiple simultaneous conversations.

The first general instant messenger program was ICQ, developed by Mirabilis, and introduced in November 1996. There are now a number of popular and free IM services, such as MSN Messenger, Yahoo! Messenger, AIM and Google Talk. AOL’s Third Annual Instant Messaging Survey (2005) found that 70% of American Internet users use instant messaging and two thirds of IM users are aged 13-21. Thirty eight percent of IM users send as many, if not more, IMs as they do emails. A quarter of IM users send IMs at work and a staggering half of teen IM users are using IM to discuss homework with friends. In New Zealand, approximately 200,000 people log onto the popular IM service, MSN Messenger, per day and two thirds of these users are under the age of thirty (Nielsen//NetRatings, 2004).

Instant messaging has incredible potential in education. The technology offers possibilities for students to collaborate together on team projects; have discussions about course material, study together and quiz each other in pairs or groups. Tutors could run one-to-many or one-on-one tutorials, virtual office hours, provide computer support and even mentoring. Additionally, students and staff could make use of the voice, video and whiteboard features to aid their conversations and explanations. For statistics education, where many graphics and symbols are used, there are limitations in text-based email or forum board explanations which would be overcome with a shared whiteboard space.

There have been many calls for research to be conducted into using IM as a learning tool, however very little has been done (Farmer, 2003; Hwang, 2004). We could not find any studies into the use of IM in New Zealand and only a handful of very small studies internationally. Cohn (2002) said that it is only a matter of time until IM becomes “*an obligatory communication modality for academic service providers.*” By actively exploring instant messaging now, universities will have the chance to incorporate it in a meaningful and efficient way into their mission of teaching, learning and research.

METHOD

A pilot project was run in two large first semester statistics classes at the University of Auckland to investigate the use of instant messaging within an educational context. The study was intended to help identify and maximize opportunities for innovative, collaborative and interdisciplinary methods of teaching and learning.

Approximately 450 students were invited to complete pre and post surveys which focused on demographics, usage, attitudes and preferences towards the Internet and, in particular, instant messaging. Students were able to contact the lecturer or a tutor online via MSN Messenger during the day and in the evenings to get help with their three assignments in the two weeks prior to each assignment due date. All interactions were archived and students were reminded of this each time they participated in the virtual office-hours service. Observations and reflections from the lecturer and tutor were collected in a shared private blog (online diary).

FINDINGS

One hundred ninety four students completed the pre-survey at the start of the semester. 63% of respondents were female and 73% were aged 18-21. Forty one percent identified themselves as Asian, 39% European, 9% Indian, 8% Polynesian and 4% as other ethnicities. 42% of the students who responded did not have English as their first language. Ninety eight percent of the students had access to a computer at home with almost half of the students using a computer for more than 10 hours a week on average. Ninety three percent had access to the internet at home with 58% on broadband connections.

Four out of every five students were using IM at the start of the semester and 58% of these students said they usually or always use IM when they go online. There was no significant difference between the proportions of male and female IM users and no significant difference in the proportions of students using IM for those whom English was their first language and those for whom it wasn't. Half of the IM users felt very comfortable using IM, with another third feeling reasonably comfortable. Four out of every five IM users had been using IM software for three or more years. Of those who used IM software, 98% used MSN Messenger, 14% used Yahoo! Messenger, 11% used ICQ and 8% used AOL, Skype or other systems. Forty four percent of IM users said they had 50 or more people on their contact list and only 40% of IM users had met all of their contacts. Sixty two percent of IM users said they had used IM to discuss school or University work. Four out of every five IM users said that if they knew the IM contact details of their lecturer, tutor or classmates they would add them to their contact list. Seventy seven percent said they would ask their lecturer a question via IM if they needed help and 74% would use IM to ask classmates for help. Eighty seven percent thought IM is a useful way to communicate with their lecturers and 93% thought IM their lecturer or classmates could help enhance their learning. Seventy eight percent said that they would like to be part of an online study group which communicated via IM.

One hundred nine students completed the post-survey towards the end of the semester. Only 57 students took part in both surveys as the elementary statistics course is available multiple times during the day and many students change lecture times during the semester. Again, approximately 80% of students were using IM and 73% were using IM to discuss University work. Over 120 students added the lecturer or tutor to their contact lists during the semester. 38% of those responding to the post survey said they added their lecturer or tutor and 44% added classmates to their contact list during the semester. Of those, 88% asked their lecturer or tutor questions and 68% had asked their classmates questions on IM. Seventy two percent thought IM was a useful way to communicate with their lecturer or tutor and 61% thought that using IM to discuss with their lecturer, tutor or classmates helped enhance their learning.

Students described a variety of ways in which they are using IM for University work from discussing assignment questions in groups, comparing answers and discussions about lectures, to clarification about course material and assessments, progress reports, arranging physical meetings to work on assignments together and even to complain with each other about their workload. In addition, they were using IM to share draft assignment files, help one another catch up on material missed while sick or away and for revision practice.

They appreciated the ease, speed and efficiency of communicating via IM, especially for quick queries about problems they were stuck on. They considered email correspondence to be too inefficient and slow and phone conversations to be too invasive. *"It makes the lecturer more available,"* one commented. They found IM to be a convenient way of communicating which provided an instant source of help while they were at home or off campus and during after hours. One student remarked *"it brings the lecturer to your house."* One student returned to her home town in another part of the country during the semester break and was able to seek support for her assignment. Students also found IM a helpful way to get statistical software support when working on their assignments from home.

For many students, IM was a natural and preferred way of communicating: *"I'm online when I'm studying normally any way"* and *"I use instant messaging very often and it is convenient to ask online rather than having to look for lecturers in person."* Students found the IM medium to be an unthreatening and more relaxed way of talking with lecturers than face-to-face encounters and liked that their conversations were automatically archived for later reference: *"I feel less stressful while contacting with them via instant messaging than talking to them in person."* *"It can be quite scary talking to your lecturer face to face."* *"Using messenger makes me feel less self-conscious."*

They valued being able to discuss their questions with groups of other students to get a variety of ideas and contributions when they were stuck and appreciated having a general awareness of who was online to be able to help them if needed. *"If we share and discuss questions, makes me think about stuff I didn't think of, it helps me with questions I may find difficult."* *"The tutor helped me figure it out for myself."*

Students also mentioned reasons why they weren't IM users which ranged from a lack of access to computers or the internet at home, not knowing how to install or update the software and concerns about viruses, to not feeling a need to use it, feeling it was a distraction or not having the time. Those who used IM had few concerns about the virtual office-hours service although some preferred getting help in person and found IM somewhat impersonal while others wanted help when the lecturer or tutor wasn't online. They also expressed some worries about the potential for a lecturer or tutor to become too busy answering questions in different conversations with students on IM.

Approximately 145 hours of conversations took place during the semester with about 80 different students. Each assignment had progressively more and more students using the virtual office-hours service, with Sunday, Monday and Saturday respectively being the three most popular days for students to request help. The peak hours were from 7pm until 11pm, with 10pm-11pm being the most popular time. The median conversation length was 9 minutes.

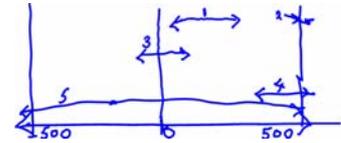
DISCUSSION

As a lecturer and tutor who are both very comfortable using IM and use it often for work and personal purposes, we found the virtual office-hours service to be a very positive, insightful and rewarding experience. Students were incredibly appreciative of after-hours help and many admitted they were unable to use more traditional support-systems due to their daily schedules.

They sought our help to clarify, discuss and provide direction on assignment questions, administration issues and to find others to talk with about course material. In addition, students provided valuable feedback on the lectures and their workload. Issues which were brought up in IM sessions were often brought up again at the start of class. More unexpected was the frequent seeking of reassurance about the course and their eagerness to open up about other aspects of their University life. One student talked about her concerns over her enrollment problems and catching up on missed University work on IM. We met together the next day in person and provided her advice and a plan to catch up. That night on IM again, she expressed her gratitude for the reassurance and support, *"Thank you for helping. Now I am going to catch up the courses I left behind. Hopefully I will do better in the next Cecil test. :) So now I can set my mind to study. I am sure I will need a lot of help from you later on, thank you for being a nice teacher (maybe friend) to me."* She felt IM to be a safe way to ask for help since her written English was stronger than her oral skills. This type of scenario was repeated numerous times. The informality and semi-anonymity of IM provided a far less intimidating environment for students to ask for help and

they made the most of it. It appears that there is a genuine need for a broader student support system via IM. Our experiences were reflected in Pew Internet research (2001) which found that teens are more comfortable talking about certain topics online as they have time to think through what they write rather than feeling awkward in face-to-face encounters. Far more students were seeking help using IM than via physical office hours or via email.

There weren't as many opportunities to use the pen and tablet and whiteboard to aid our explanations as we had initially envisaged and students using older versions of MSN Messenger were unable to receive handwritten material. However, using a pen and tablet was far easier than drawing by mouse.



While IM conversations occurred over a period of 145 hours, multiple conversations were often occurring at once and exchanges frequently were intermittent. We were able to multi-task and do other work without overt interruption while being available on IM. When we became busy or unavailable, this was quickly made known to the students on our contact lists by changing our status and no further explanation was required. We learnt to change the IM settings not to automatically log us into IM each time we connected to the internet from home, but rather choose to deliberately log in when ready to offer help as we initially had some unintended late-night conversations with students. While IM encourages the growing expectation of ubiquitous access to lecturers and tutors and it could result in added workload, we did not find the virtual office-hours to be a burden. If adopted widely, employing further tutors to be available during the evenings would be beneficial.

Students who engaged in online study groups found them to be beneficial and convenient, yet the majority of students seemed to remain unaware of these groups and wished they had been a part of one too. Students were asked for permission to allow their contact details to be seen by others before being joined to group conversations. There were no inappropriate comments made amongst students in either IM study groups or during one-on-one help and no student expressed concerns about their privacy.

Smaller groups worked better than larger groups, where the conversation window changed rapidly with so many people taking part in the discussion. We were able to oversee some of these study group discussions and intervened if they were becoming confused about an issue. In some cases, these virtual study groups evolved into both online and offline groups where students met each other in person for the first time. For a first year elementary course with thousands of enrollments, this could be a natural way for many students to get to know their classmates.

IM is such a simple and quick tool to use that the barriers to asking for help are minimal compared to more traditional methods where students must travel to get assistance. As a result, some students had to be encouraged to think for themselves about their issues or to discuss assignment approaches with other students via IM, rather than immediately using IM to contact the lecturer or tutor each and every time they were having difficulties.

Providing online support and privately blogging our reflections on the virtual office-hours service made us feel as though we were becoming more thoughtful in our help, clearer in wording our responses to the students and in turn, becoming better tutors. We were also able to be more efficient by distilling some of the most common queries, posting those answers to the class forum and then directing other students to this help by sending them a link to the appropriate forum topic. Furthermore, we were able to support each other via IM by sharing the load if one had a lot of students requesting help and discussing together the issues students were most needing help with.

CONCLUSION

"If students come to us with PDAs and cell phones... and spend hours using Instant Messenger, we should use what they know as the starting place for their educational experience." (Smith, 2002)

A large proportion of our students are regularly using IM and many are already using it to help them learn, discuss, revise and study. While some may see IM as a time waster, virtual IM office-hours can be effectively used as a way of providing increased timely, targeted and remote

support for students. The unthreatening and semi-anonymous environment enables students to be more open about their questions and problems and provides deeper insight into how we can better teach our classes.

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