

# Do Virtual Reference Librarians Dream of Digital Reference Questions?: A Qualitative and Quantitative Analysis of Email and Chat Reference

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*ABSTRACT* Virtual reference in an Australian academic library was examined using qualitative and quantitative analyses of email and chat transcripts. Forty-seven chat transcripts and a matched sample of email were analysed to examine questions of usage, question type, the reference interview and communication processes involved with these interactions. Results show that the usage of synchronous virtual reference in this sample is very low with a call rate of approximately one call for every four hours of availability. Email and chat show similar usage rates when hours of availability are taken into account. Chat enquiries tended to have higher proportions of research and reference enquiries. Email questions tended to have a higher proportion of administrative questions. Techniques of the reference interview are used far more frequently in chat than in email transactions. Chat and email transcripts were compared quantitatively using various metrics including duration and total word number. The average call length for a chat transaction was 22 minutes. Barriers to communication within a virtual environment are discussed.

In 1984 when the internet was just a shadow of its later self, Maurice B Line noted that because of the increasing possibilities of information technology, libraries will 'devote less attention to storage and more to transmission'.<sup>1</sup>

Perhaps the groundswell of interest in virtual reference in part reflects the prescience of his prediction.

Virtual reference comes in a number of forms. The initial variants of virtual reference included email in the late 1980s and the ubiquitous adoption by libraries of web-based forms that allowed users to send questions to reference librarians and receive a response, usually within 24 hours and often much sooner. More recent developments have allowed virtual reference services to venture into real time or synchronous methods of communication. Chat technologies that have been used primarily for social purposes have enabled librarians to conduct real time reference interviews online with patrons.

Reference librarians have responded in various ways to the advent of virtual reference services. For some it is 'the most exciting development in reference work in a long time'.<sup>2</sup> To others it is 'overrated, inflated and not even real'.<sup>3</sup> It could be the very future of reference librarianship or spell the

end to it. For some it might mean less reference librarians but with higher salaries.<sup>4</sup>

One of the principal reasons for providing virtual reference is to increase access to the knowledge and skills of the reference librarian. To stay relevant to the needs of the 21<sup>st</sup> century student, academic libraries have gone into cyberspace and maybe the librarian has to meet the student there. McKinzie and Lauer<sup>5</sup> note that 'librarianship has yet to meet a technology it doesn't like' and believe that the drive behind virtual reference may have more to do with the profession's fascination with the technological possibilities than established needs existing amongst the users.

It is also important to establish the extent to which reference librarians need to adapt their existing skills to meet the demands of the virtual reference environment. Hodges reminds us, at least in regard to email and chat, that, 'There are no visual or audio cues to guide the reference interview; users become impatient and disconnect if librarians take too long, leaving librarians uncertain about the status of the interaction'.<sup>6</sup> Janes notes that while virtual reference may be *exciting* and *full of potential*, current technology can produce problems that are unique to the new domain of virtual reference. 'Users simply evaporate in the middle of live chat sessions'.<sup>7</sup>

Such concerns have also led to speculation about which types of reference services accommodate which types of questions. Jackson<sup>8</sup> quotes Janes as believing that virtual reference best answers ready reference and popular culture questions, whilst dealing poorly with more sophisticated research questions.

Whilst many librarians seemingly believe that virtual reference is a great idea, little has been published that investigates the genuine need for real time services. Whilst the adoption rate of virtual reference services by *libraries* is high, the subsequent uptake by users is typically low, at least in many academic contexts.<sup>9</sup>

This article reports on an investigation carried out as part of a Masters research project of some of these issues as they have been experienced by the *Online Librarian*, the virtual reference service delivered by Murdoch University and Macquarie University. The investigation dealt only with the transactions handled by Murdoch University and focussed on the provision of chat and email virtual reference. Software used by *Online Librarian* was selected because of its Voice over Internet Protocol (VoIP) capability. As such it is not meant to provide a complete analysis of the *Online Librarian* service.

### **The *Online Librarian***

The *Online Librarian* commenced operation on the third of March 2003. This service was developed using a consortial arrangement between Murdoch

University in Perth and Macquarie University in Sydney. Macquarie has been offering a virtual reference service since 2000. The consortial arrangement saw Macquarie providing service to both campuses between 3 and 6pm Western Standard Time (WST) Monday to Thursday, and Murdoch providing service between 6 and 9pm WST. Service on Saturday and Sunday was provided between 11 and 5pm WST, again with Macquarie covering the first three hours. During the period under investigation, the *Online Librarian* service used designated staff, separate from the main reference desk.

Microsoft NetMeeting is used to provide virtual reference as it is available on most Windows operating systems, is straightforward to set up and provides text based chat and VoIP. Screen sharing allows a student to see web pages as the librarian visits them and associated activities such as cursor movements and typing of search terms.

The *Online Librarian* service is aimed primarily at postgraduate and off campus students. It is marketed as real time/real talk, for students studying at home in the evenings and weekends. Its intended focus is on the potential for instructional support offered by voice and screen sharing technologies, though as the study acknowledges, most use of the service was text based chat, associated with screen sharing. A description of the full *Online Librarian* service, its objectives, and an assessment of its successes, failures, and future were presented at VALA 2004.<sup>10</sup>

## Methodology

The primary data for this study includes all calls to the Murdoch University Library *Online Librarian* between the period 3 March and 18 August 2003, equivalent to 119 days of operation. Calls are made to the service by Murdoch and Macquarie students and others, which included members of the public and TAFE students.

The Murdoch Library also offers an email reference service under the title *Ask A Librarian*. Students can post questions to *Ask A Librarian* 24 hours a day and receive answers about various research and reference issues by the next working day. Both question and answer are archived. An equivalent number of *Ask A Librarian* transcripts were used for comparison to the *Online Librarian* transcripts. Sampling of the *Ask A Librarian* transcripts took the nearest possible email transaction on both the day and time that the chat transcript occurred. Personal information was removed from the data at point of inclusion in the study. This involved removing name, email address and student numbers. An Excel spreadsheet was used to code the data. In chat, individual HTML files were converted to word files. Email data were initially saved as a text file.

In this study a number of quantitative and qualitative measures were taken. Quantitative measures included the following:

- total and corrected delays (in hours and minutes) for answering email
- number of successful and unsuccessful calls to chat
- population characteristics such as student type (Murdoch, Macquarie or other)
- modality of transaction (Voice over Internet Protocol or chat)
- total word number for both email and chat transactions, and
- number of *turns* taken by student and librarian. In chat each party communicates by sending a series of text messages 'back and forth' to each other. In the following example there are five total turns, three librarian turns and two student turns:

Librarian 'Hello this is the *Online Librarian*, how can I help you?'

Student 'I'm having trouble with an assignment'

Librarian 'Could you tell me a bit about the assignment?'

Student 'I'm in psychology and have to write an essay about personality'

Librarian 'What particular aspects about personality do you need to discuss?'

Qualitative measures included the following:

- question type in both email and chat
- within the chat data, *librarian question type*, whether the question clarified the nature of the student's question (reference related) or served an administrative function (Murdoch or Macquarie student), and
- within the chat data, analysis of transcripts to examine for the presence of disjointed communication (where student or librarian 'talks out of turn' so to speak), hang ups (call is terminated by student before an apparent resolution to their difficulty), presence of screen sharing and confirmation that screen sharing is working.

## Results

All results pertain only to the Murdoch University Library's provision of chat and email virtual reference service.

### Use and Usage of Email and Chat Virtual Reference

Email enquiries show an increase of 63% from 456 in 2002 to 736 in 2003, when equivalent periods were examined (January to July).

Table 1 shows the total and corrected delays for the 47 matching emails sent to *Ask A Librarian*. *Total delay* indicates the total elapsed time between a question sent and a reply given. *Corrected delay* takes into account the working hours of the reference desk (Mon-Fri 9.00-9.00, Fri 9.00-6.00, Sat-Sun 12.00-5.00) and deducts the non-working hours from the total elapsed time if the time period includes these hours.

**Table 1**  
**Total and Corrected Delay for Email Questions to**  
**Ask A Librarian**

	<b>Minimum Hours:Minutes</b>	<b>Maximum Hours:Minutes</b>	<b>Mean Hours:Minutes</b>
Total delay	0:15	22:00	5:51
Corrected delay	0:15	6:57	2:32

Table 2 shows the statistics recorded by the *Online Librarian* service for all calls excluding testing calls made by staff members in the initial setting up period. A total of 128 calls were made to the service in this period, of which 85 were successful connections indicating that some meaningful communication took place. However, 43 calls were classified as failures to connect before meaningful communication took place.

**Table 2**  
**Number of Calls to the *Online Librarian* for the Period**  
**3<sup>rd</sup> March to 18<sup>th</sup> August 2003**

<b>Numbers of Calls</b>	<b>Raw Score</b>	<b>Percentage</b>
Total calls including drop outs and fails to connect excluding multiple drop outs from same caller	128	100%
Total calls made successfully	85	66%
Calls that failed to connect or dropped out without meaningful communication	43	34%
<b>User Population</b>		
Murdoch students	26	30%
Macquarie students	51	60%
Other callers	8	10%
<b>Modality of Transaction</b>		
Number of chat calls	73	86%
Number of voice over internet protocol calls	12	14%

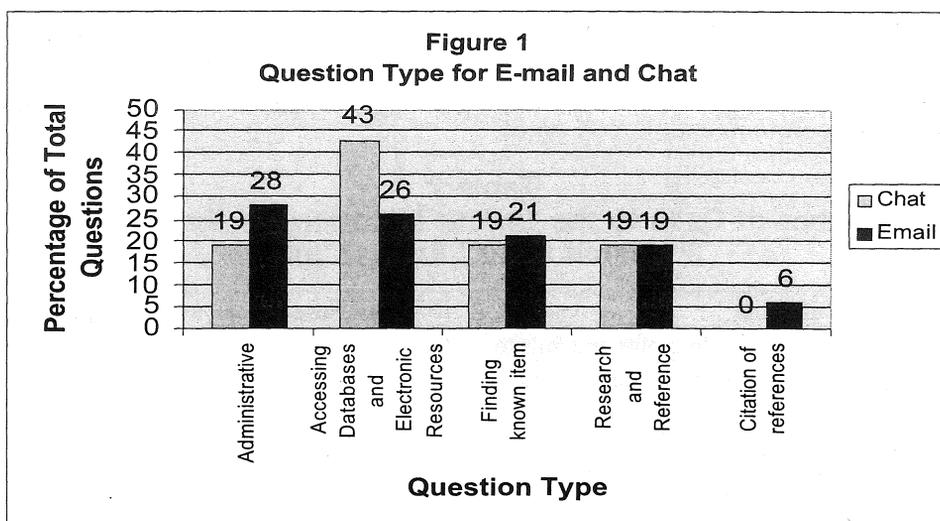
Unfortunately, 34% of callers to the *Online Librarian* were not able to establish a connection that allowed them to communicate. Of the 73 chat calls received in the study period, 47 (64%) were available for analysis.

The average number of *attempted* calls per day (three hour period) to the *Online Librarian* is 1.07 calls (total number of calls divided by total number of days of operation; 128 divided by 119). This indicates the level of demand if everyone who tried to contact the service was successful.

However, the average number of *successful* connection calls per day for the *Online Librarian* is 0.7 calls (85 divided by 119). This is a more appropriate figure to compare with email reference as only successful communications via email are considered. Given the simplicity, ubiquity and familiarity of email it is unlikely there is a significant number of unsuccessful attempts to send an email enquiry.

### Question Type across Email and Chat Virtual Reference

Figure 1 shows the classification of question type across chat and email.



### Differences in Word Number in Email and Chat

Table 3 shows the minimum, maximum and mean total word number for email and chat for librarian and student question and response.

Reference enquiries via email have an average total word length of 57 words compared to 162 words in chat. The total words used to communicate the questions via chat therefore takes between two and three times as many words than email.

Librarian answers by email reply are approximately half the total word number compared to chat. This raises the possibility that chat reference services – more so than email – may give rise to ‘chit chat’ on the part of either parties, and evidence of this was found when transcripts were analysed.

**Table 3**  
**Total Word Number for Chat and Email**

		Minimum	Maximum	Mean
Email	Student words Question	12	131	57
	Librarian words Answer	26	772	109
Chat	Student words Question	57	406	162
	Librarian words Answer	27	665	236

In a further effort to collect information relevant to the process of the reference interview all questions asked by the librarian were coded into two categories. The two categories attempted to distinguish between administrative and reference negotiation questions. Administrative questions were those that related to the use of the technology or some aspect of the user's status, while reference questions were those that related to identifying the information need.

Table 4 shows the minimum, maximum and mean for the number of questions asked by the librarian during each transaction and classified as administrative or reference oriented.

**Table 4**  
**Librarian Question Type in Chat Transcripts**

	Minimum	Maximum	Mean
Administrative	1	8	2.9 (45%)
Reference	1	9	3.5 (55%)

While the librarian asks on average between 6.4 questions per session, nearly half of these questions (45%) are of an administrative nature. On average 3.5 questions per virtual reference enquiry focussed on reference negotiation.

### **Communication Metrics in Chat**

Table 5 shows the minimum, maximum and mean for duration of call and number of turns taken by librarian and student in chat sessions.

**Table 5**  
**Duration of Call and Number of Turns During Chat for Librarian and Student<sup>11</sup>**

	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
Duration of call Minutes (hr:min)	0:05	0:47	0:22
Librarian turns	7	44	19
Student turns	5	68	21
Total turns	11	92	41

Table 6 shows the communication metrics calculated for the chat transcripts.

**Table 6**  
**Metrics for Chat Transcripts: Disjointed Communication, Hang-ups, Screen Sharing, Confirming Screen Sharing**

	<b>Yes</b>	<b>No</b>
Disjointed communication	18 (38%)	29 (62%)
Hang ups	6 (13%)	41 (87%)
Screen sharing	28 (60%)	19 (40%)
Confirm screen sharing	19 (68%)	9 (32%)

## **Discussion**

### **Usage of Email and Chat Virtual Reference**

The current study shows that the rate of email virtual reference transactions is approximately four per day (112 emails in August 2003). Figures over the course of an academic year show marked variability with peak periods at the start of both semesters and with low usage in semester breaks. Figures for 2002 and 2003 show an increase of 61%.

The usage rate for the *Online Librarian* is at first glance, less encouraging. In 119 days of service 85 calls were received with some meaningful communication occurring. This gives a usage rate of 0.7 calls per day. As each day of operation provides 3 hours of service this equates to 0.23 calls per hour of operation or approximately one call every 1.5 days. Additionally the number of days with no calls is surprisingly high and occurred 42% of the time.

However, perhaps this comparison between usage of email and chat reference services is unfair. Email is available 24/7. *Online Librarian* is available 3 hours per day over 6 days. This provides 18 hours of available

connection time, per week. If we assume a linear relationship between hours of availability and number of users, what would be the usage rate if the *Online Librarian* were available for 18 hours per day? (8.00am to midnight). Eighteen hours per day is used because very few email enquiries are received between midnight and 8.00am.

$$\text{Hours of operation (18)} \times \text{Calls per hour (.23)} = 4.14 \text{ calls per day}$$

This figure is intriguingly close to the rate of email questions per day (4).

If we assume this comparison is in fact a more valid one, then it would imply that real time reference is no more or less popular than email reference. What is not known is whether, when given a choice, students prefer a synchronous service (for the Murdoch only aspect of the study, between 6 and 9pm). The current study did not examine this directly, but it could be done by charting the enquiries during the equivalent time period in the email archive. This might help determine whether a call to the *Online Librarian* essentially 'steals' an email reference enquiry.

### **Why don't Students Use the *Online Librarian* more Frequently?**

Students will not use a service that they do not know is available. No direct measure of service awareness was attempted. However the WebTrends statistics give some indirect measure of usage. The number of visits to the joint *Online Librarian* and *Ask A Librarian* web page for August was 792, or 25 a day. It is impossible to tell whether the 25 visits per day are 25 different students, but even allowing for some repeated visits by the same students, it implies that a considerable proportion of students have at least followed the links to the *Online Librarian* and *Ask A Librarian* service.

What the present study has little information on is the users who might like to connect or have attempted to connect, but failed to establish meaningful dialogue: 34% of calls to the *Online Librarian* during the study period failed to achieve useful communication. This is a significant number of calls that are being missed. Whether this is due to anxiety about the set-up process, technical difficulties or some other factor is unknown, but would include:

- students who wanted to connect but were frightened off, found the process too technological or could not be bothered to complete the set-up process, and
- students who connected but had difficulties establishing a chat window and hung up.

Do university students want or need real time virtual reference assistance via chat? There is little evidence to date that they have been asked, although a number of papers lament the lack of attention to the user in virtual reference. Indeed it may be that university students are not in great need of virtual

reference assistance. Librarians have stores of both practical and esoteric knowledge that could and should be tapped, but clearly we still need to be able to identify the barriers that stop students from using these resources.

A key finding of the current study is confirmation of the strong correlation between size of population served and use. This is very neatly demonstrated by the differential use of the *Online Librarian* service by Macquarie and Murdoch students. Both within the sample of overall users and the analysed chat transcripts Macquarie students accounted for twice the number of calls that were made by Murdoch students. CAUL statistics for 2001<sup>12</sup> show that the student numbers for Macquarie are almost exactly double that of Murdoch; Macquarie students (persons) 21,789; Murdoch students (persons) 10,736

Overall the above results confirm previous findings of low uptake of virtual reference within certain populations.

### **Question Type in Virtual Reference**

The questions asked in the two modalities of virtual reference are in some respects similar. Both chat and email virtual reference receive approximately the same proportion of questions about finding known items and research and reference.

Differences occur, however, in several areas. Email received a small yet significant number of questions about referencing and citation, while chat received none of these questions. Email received a higher number of administrative questions but a much lower number of questions about accessing databases and electronic resources.

These differences may occur for a number of reasons. Firstly, the available samples of email and chat transcripts are small. These differences could be simply the result of random fluctuations. Secondly, perhaps a factor such as immediacy is operating. Immediacy may be a construct that reflects how important it is to get an answer or assistance immediately. Immediacy may shape the type of question received by different modalities of virtual reference service. It is possible to hypothesize that administrative and referencing questions have a low immediacy. In contrast to this influence, accessing databases and electronic resources are high in immediacy. If a student is trying to access a resource but is prevented from doing so and doesn't want to wait until the following day before receiving a response they may opt for a real time service.

Thirdly, another factor that could shape the proportional profile of question types, in chat at least, is its interactional nature. In chat the librarian is not a passive observer. Instead the librarian is actively involved and a participant in shaping the interaction. Conceivably the high proportion of access

type questions may be a function of the librarian steering initial enquiries toward this end. It is possible that questions started out as finding a known item but due to the inquisitive nature of the reference interview, wound up as research and reference.

### **The Reference Interview in Virtual Reference**

Whilst it is possible to conduct a reference interview via email the 'delayed response' of the medium probably discourages librarians from attempting this. Within this sample the occurrence of email based reference negotiation was not evident. However, the sample of 47 transactions is particularly low in relation to the overall number of questions received. An examination of a larger number of email transactions did show some evidence of question clarification via 'back and forth' emails.

The process of question negotiation does occur within chat. In this sample of 47 transcripts question negotiation occurred at some level in all. The average number of reference related questions was 3.5 indicating that most of the time the librarian is asking 3 to 4 questions to clarify the nature of the enquiry.

Opinion is divided in the literature about the relative value of the reference interview at the reference desk. Certainly its application to chat space is likely to cause just as much division of opinion. The reference interview is certainly possible in a virtual and synchronous environment. But whilst we can do it, should we? The reference interview is both crucial and unnecessary. Not at the same time, but with different students who have different needs and different questions. The trouble for the librarian is that there is a poverty of information as to which category this particular user, with this particular question, belongs. How much do they really need to find out about the question before beginning to explore the answer? In virtual reference whilst we probably should at some level conduct a reference interview, perhaps we need to be careful how we do it.

### **Reference Interview Conducted**

An analysis of one transcript of 22 turns showed the librarian asking seven questions: five reference and two administrative. The student apparently hung up without receiving any substantive help. A crucial factor may have been the time taken to do this. The 163-word conversation took 7:21 minutes. If the conversation were spoken it would have taken approximately 70 seconds. This is approximately 600% longer. Presumably VoIP would remove this barrier.

When using text to elicit information we run the risk of sounding like we are playing '20 questions'. The nonverbal interaction present at the reference desk can serve to soften this appearance. In chat space there is an element of having a rather tenuous connection to the student. The very anonymity of chat

makes it possible to just hang-up without much embarrassment to the student. Janes for example notes that live reference can be characterised by 'awkward live exchanges' and that 'users simply evaporate in the middle of the chat session'.<sup>13</sup>

## Communication

What can the communication metrics examined here tell us about reference in a virtual environment? Effective communication is fundamental to all of our endeavours as librarians when assisting students to acquire the information they need. Chat and email reference present both unique opportunities and barriers to this process.

Whilst the literature of virtual reference makes a dichotomous distinction between synchronous and asynchronous communication, this separation may not be so black and white. A synchronous communication exchange could be defined as one where the sending and receiving of information occur at the same time. In a normal conversation both sending and receiving the message occur at the same time. At the reference desk the librarian is usually listening to the student whilst they speak. In real time reference, at least with NetMeeting, the chat exchanges are typed and sent in a stepwise manner. Because this creates a delay, synchronous chat is not quite synchronous. Whilst this is often not a great impediment, it does attest to the difference between chat and face-to-face conversations. This aspect of chat probably accounts for a proportion of the 38% of disjointed communications in the chat transcripts.

Some of the fundamental communications skills that are used at the reference desk include listening, paraphrasing, reflection and restating the question. In a textual environment many of these skills may seem somewhat contrived or artificial. This is supported by recent survey findings of Sloan who notes that the leading criticism of virtual reference was the librarian's 'attitude'. Sloan notes that these perceptions are likely to 'stem from the impersonal nature of the chat medium itself' and may well be 'endemic to virtual librarianship on the whole'.<sup>14</sup>

Chat may be popular and effective at providing a medium for social exchange, but does it provide an effective way to communicate about activities and tasks that have a defined purpose and goal? Perhaps chat is an inherently poor technology to accomplish the communication exchange known as the reference interview. Joinson<sup>15</sup> for example notes that 'tools do not simply translate a behaviour to a new medium without some impact on psychological processes'.

Chat transactions lack many of the clues that may assist us to conduct a useful reference transaction. Both verbal (tone of voice, hesitation etc) and nonverbal cues (body posture, attentiveness, smiling and frowning) are absent

in the chat environment. Unfortunately, emoticons provide a shallow substitute for these indicators.

Issues of feedback (or lack of it) also occur within a screen-sharing environment. Whilst screen sharing is an obvious advantage in reference and user education it brings with it a range of other problems. These are often due to low bandwidth on the part of the student when librarians are operating using high transmission speeds and may leave the user behind. At the reference desk, a librarian might at least be afforded a puzzled look to indicate that they are going a little fast.

### **Content and Speed**

Both librarian and student words are approximately double in chat compared to email. This metric may provide a crude measure of content of the communication, and indicate that a proportion of the communication in chat is chit-chat.

The average length of a chat session is 22 minutes. The average total word number for an email transaction is 166 (librarian and student words). Assuming a typing speed of 20 words per minute this transaction would take about eight minutes to type the text. This of course doesn't include the time for the librarian to research the answer. Would this part take an additional 14 minutes? The text and typing elements of an email transaction might take one-third the time to do all of an average chat transaction. However they provide potentially very different information sets and experiences for the student. Screen-sharing provides a wealth of information not reflected by the textual record of chat.

### **Chat or Chit-Chat?**

Elements of the chat interaction assist the process of communication but cannot be said to be informative *per se*. Many of these are almost completely unnecessary in an email interaction. Email interactions may have some perfunctory greeting and a brief expression of sympathy about the 'stupid PIN numbers' or 'trouble with accessing databases' etc. In chat it is, however, informative to say in text to the client 'I'm just looking at a database and will only be a moment'. This is unnecessary in an asynchronous interaction.

Are questions attempting to clarify the question, information? To the student possibly not, but to the librarian definitely. If the librarian can clarify the question presumably the response is going to better meet the need of the student.

While the text may give a gross indication of content of communication, what happens within chat may not be accurately reflected by only the textual transcript. For example, the high frequency of screen sharing evident in these transcripts adds an element to this communication process that is inadequately

reflected by the text alone. A shared screen may well be worth a thousand words.

## **Immediacy, Delay and Impatience**

*I don't care if you do it quickly, as long as you do it now.*

Synchronous services such as chat give us the chance to respond in a comparatively immediate way. But then so does the telephone. If a student wants to access a database right now, an answer that comes in 'the next working day' may not be anywhere immediate enough. Chat may be the preferred method if you need an immediate answer.

But this may not be the case if you need a quick answer. If the content of these communications (as measured by number of words) is an indication then it probably involves more of the student's time using chat than email. The amount of text alone in a student's email is half that of a chat message. This does not even take into account the time spent waiting for a reply to (on average) 19 turns.

If you have a research need and your assignment isn't due until next week you might opt for email, as it is quick in terms of total time spent if not as immediate.

## **Opportunities in Virtual Reference**

In 60% of transcripts analysed the librarian used screen sharing. For 68% of the time the librarian also took the important step of confirming that they were indeed on the same page. This appears to confirm the value of screen sharing as a very useful facility and visually simulates sitting across from a student as might be done at the reference desk. Some might say it's the next best thing to having a librarian in your lounge room.

Migrating reference to a chat environment makes it very possible to look at the subtle communications of the reference interview, which may have largely seemed too intrusive at the reference desk. In some cases, examining a chat-based transaction that has relied heavily upon screen sharing to impart information appears to make no sense at all. Without the visual elements and screen-based information, the text can really only allude to what is happening. While we can easily capture the textual elements of a chat reference transaction, there are also technologies that enable recording of the textual transactions, screen sharing, cursor movements and VoIP.<sup>16</sup>

## The Futures of Virtual Reference

Virtual reference does appear to have a bright future, at least in some contexts. The success and popularity of virtual reference initiatives to domains such as the public library population is both good for the public and the libraries that serve them. Real time chat-based services may not be the ideal way to provide reference services that focus upon instruction, due to the complexities of this realm of communication. Voice, however, accompanied by screen sharing, would seem to offer great promise in an educational setting, especially for remote users unable to interact with the library's reference and information literacy services in person.

Academic libraries may well be victims of their own success, having been successful in teaching end user searching to an increasingly information literate generation who have grown up with Google. Additionally the influence of the population served seems fundamentally important. Attempting to staff a dedicated real time reference service may not be viable simply because the student body is relatively small. While Murdoch University has continued the *Online Librarian* for 2004, the work is now integrated into existing reference desk staffing. On the other hand virtual reference via email is likely to remain a relatively easy and effective modality for providing reference assistance to students. The field of virtual reference offers great opportunity to look at the process of reference work, collect some meaningful information and hopefully extend our reach beyond the walls of the library.

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**Disclaimer** Unless explicitly attributed, the opinions expressed are those of the author. Murdoch University Library does not endorse or necessarily agree with the opinions expressed herein.

## Notes

- 1 M B Line 'Some Possible Future Effects of Information Technology' *IFLA Journal* vol 10 no 1 1984 p58
- 2 J Janes 'Live Reference: Too Much, Too Fast?' *netConnect* (quarterly supplement to *Library Journal*) Fall 2002 p12
- 3 S McKinzie and J D Lauer 'Virtual Reference: Overrated Inflated and Not Even Real' *The Charleston Advisor* vol 4 no 2 2002 p1 <http://www.charlestonco.com/features.cfm?id=2112&type=ed> [accessed 14 April 2003]
- 4 S Coffman 'Distance Education and Virtual Reference: Where are We Headed?' *Computers in Libraries* vol 21 no 4 2001 pp20-25
- 5 McKinzie & Lauer *op cit*
- 6 R A Hodges 'Assessing Digital Reference' *LIBRI* vol 52 2002 p159

- 7 Janes *op cit* p13
- 8 M G Jackson 'A Rush to Serve: Digital Reference Services and the Commitment to 24/7' *Advances in Librarianship* vol 26 2002 pp299-317
- 9 L Goetsch L Sowers and C Todd 'Electronic Reference Service' *SPEC* vol 251 October 1999
- 10 J Fletcher P Hair and J McKay 'Online Librarian – Real Time/Real Talk: An Innovative Collaboration Between Two University Libraries' Paper presented at the VALA 2004 12<sup>th</sup> Biennial Conference and Exhibition 3-5 February 2004 <http://vala.org.au/vala2004/2004pdfs/20FIHaMc.PDF> [accessed 1 March 2004]
- 11 These measures are independent. Minimum, maximum and mean are calculated independently for librarian, student and total turn number. Total turns will not be the sum of librarian and student turns. Maximum total turns is the maximum for one particular transcript.
- 12 Council of Australian University Librarians *CAUL Statistics 2001* <http://www.caul.edu.au/stats/caul2001.xls> [accessed 6 September 2003]
- 13 Janes *op cit* p13
- 14 B Sloan *My Web Librarian: A Report on Patterns of System Use and User Satisfaction* <http://www.lis.uiuc.edu/~b~sloan/mwl-report.htm> [accessed 8 August 2003]
- 15 A N Joinson *Understanding the Psychology of Internet Behaviour: Virtual Worlds Real Lives* New York Palgrave 2003
- 16 TechSmith *SnagIt* <http://www.techsmith.com/products/snagit/default.asp> [accessed 6 October 2003]

## Future Memory at the National Library

The National Library has opened its latest exhibition, *Future Memory: National Library Recent Acquisitions*, to considerable media attention. Over 200 items were chosen from the vast amount of material added to the library since 1999. Items include rare books from the 16<sup>th</sup> and 17<sup>th</sup> centuries, an early 19<sup>th</sup> century map of the Pacific, a Victorian-era board-game *Courtship and Marriage*, the 1908 *Ladies' Guide in Health and Disease*, photographs of Australian industry by Wolfgang Sievers and of the Tasmanian wilderness by environmentalist Peter Dombrovskis, paintings by Eddie Mabo, Manga comics from Japan, a satellite map of the Canberra bushfires, political cartoons by Alan Moir and Geoff Pryor, and sheet music from a Delta Goodrem single.

Curator Margaret Dent said: 'Choosing the items was both a joy and a challenge. We receive so much material each year and so many of the items have fascinating stories attached to them. The marvellous thing about an exhibition such as *Future Memory* is the infinite variety of ways that material can be combined to tell a different story. It also illustrates the many ways in which we acquire material and, more importantly, the generosity of individuals and organisations who have donated to the collection.'

The exhibition runs from which runs from 27 May until 1 August.