
Looking to Connect

Technical Challenges that Impede the Growth of Virtual Reference

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Guest Columnist

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Sam Stormont's well-considered column made me think about current virtual reference issues in a different way. He brings together and unifies several threads: instant messaging, the goal of convenience, technological barriers, and collaboration. These themes were hot topics at the Collaborative Virtual Reference Symposium in July 2007. I am pleased to present Sam Stormont's column and to bring these issues to a much larger audience.—*Editor*

Virtual Reference (VR) has been around for at least twenty years and has grown in popularity, with more and more libraries offering some version. As librarians evaluate their chat services, a consistent question is, "Why aren't more people using this service?" There is abundant evidence that millions of teenagers and young adults are using commercial chat and instant messaging (IM) services regularly, but that isn't translating to the library realm.¹ A lot of discussion focuses on increased marketing and promotion efforts as the way to increase use of VR services. Little has been written, however, about the influence technical barriers have had on VR and how those issues have impeded VR's acceptance and growth.

With any emerging technology, it's reasonable to expect an initial period of problems while the bugs are being worked out. However, VR electronic list discussions still include too much about problems and too little about features, services, and the innovative ways this technology can be used to help our users. Too much time and energy is spent writing and reading e-mails describing problems with co-browsing and working with vendors and local systems departments trying to troubleshoot the problems. At this point in VR services development, more of the glitches should have been worked out. I believe that it's time for librarians to focus on a VR solution that emphasizes simplicity and convenience. The process of asking for help needs to be uncomplicated and easy for the user.

VR: THE EARLY YEARS

The earliest documented e-mail reference projects date to the mid-1980s.² Commercial use of chat also dates to the same period.³ In the late 1990s, there was increased interest, and some experiments began with live, or real-time, reference. Those early initiatives have evolved into what is now commonly referred to as chat reference and IM reference.

A lot of different names have been used to describe VR. I will follow the guidelines established by the RUSA Guide-

lines for Implementing and Maintaining Virtual Reference Services:

Virtual reference is reference service initiated electronically, often in real-time, where patrons employ computers or other Internet technology to communicate with reference staff, without being physically present. Communication channels used frequently in virtual reference include chat, videoconferencing, Voice over IP, co-browsing, e-mail, and instant messaging.⁴

Some early VR services used chat programs that allowed users and librarians to send text back and forth and librarians to push pages to the user. However, one of the most exciting developments was the introduction of co-browsing, which allowed a librarian to share the user's screen and lead the person through a search while the user watched and learned. How cool was that! It was now possible to not just describe how to do a search, but to actually do the search while the patron watched. This created a tremendous buzz in the library community, as people realized the immense potential for teaching and learning. Co-browsing was great . . . when it worked. Unfortunately, there were a number of instances when it didn't.

CONTRARIAN VIEWS

One of the best-known figures in the early virtual reference movement was Steve Coffman, a librarian who moved from the Los Angeles Public Library to LSSI, a library services company that offered one of the first VR software and service packages. Coffman was an energetic VR proponent, speaking frequently and traveling extensively nationally and internationally to promote it. After several years, though, the initial glow dimmed somewhat when it started to become evident that VR just wasn't being embraced by patrons in the numbers that had been predicted. Coffman and Linda Arret, a librarian and consultant, authored an article questioning the "irrational exuberance" with which VR had been embraced.⁵ They brought up serious questions about the economic viability of the models that had been tried.

Joe Janes, founding director of the groundbreaking Internet Public Library and now an associate professor at the University of Washington Information School, writes in "Introduction to Reference Work in the Digital Age" about reference librarians' experiences in adapting reference practice to the digital environment. In a recent *American Libraries* column, Janes notes, "I've always thought co-browsing was clumsy and unnecessary—copying and pasting URLs in an IM window works just fine for me."⁶

COMPLEXITY CREATES CONFLICTS

The reasons for co-browsing's inconsistent performance can be traced to the exceedingly complex technological environment in which we all operate. Co-browsing was originally

developed as a corporate communications solution. If you are communicating within one organization, or similar organizations, all of whom have incentive and have agreed to follow certain protocols, co-browsing can be a fabulous tool. The challenge, of course, is that libraries need to be able to communicate with private individuals with many different types of computers and browsers, through different networks, for different purposes.

The technological challenges involved in making co-browsing work were (and are) quite daunting. What it really comes down to is that there are simply too many variables, and it's not possible for libraries to control for all of them consistently. All the stars have to align correctly to carry out a successful co-browse session. Unsuccessful sessions are frustrating to both patron and librarian. If your cell phone service dropped your calls a significant percentage of the time, would you look for a new service? You expect to be connected every time you place a call and to retain that connection. The connection rate goal should be more than 99 percent. Anything less is a distraction.

Because Internet Explorer (IE) is the dominant browser, with more than 83 percent of the market, most vendors focus primarily on writing software that will operate in an IE environment (this percentage has been dropping, but IE is still the eight-hundred-pound gorilla).⁷ So if you're using the latest version of IE in a Windows environment, the chances are greatly increased that co-browsing will work fairly consistently. However, if you use a Mac computer and the Safari browser, or the Mozilla Firefox browser, which some users strongly prefer, you may have problems. Not to mention Linux users, the Opera browser, and other operating system and browser configurations.

Security was very high on the priority list when developing the latest version of IE and MS Office.⁸ Chat software developers will have to keep up. An increasing emphasis on security means increased potential for co-browsing glitches, as VR software must be constantly modified to accommodate new security measures.

Browsers and operating environments are just the beginning, however. Pop-up blockers and firewalls can wreak havoc and prevent co-browsing. Users are advised to turn off pop-up blockers and disable firewalls. Add to the mix slow connection speeds, the inability to search many online research databases unless you can authenticate, and the need to read a page of instructions explaining how to use VR and what to expect, and you have some significant impediments.

And the list doesn't stop there. Users also need to enable cookies and be aware that some Web resources cause disconnects. There are admonitions not to use the refresh and forward buttons on your browser. Do not try to add to favorites. If you must open a second browser for any reason while connected, use the Start menu or Taskbar shortcut, not Control-N or File, New, and so on.

A recent Pew study found that teens and Generation Y (eighteen- to twenty-eight-year-olds) are enthusiastic users of online applications that enable communicative, creative,

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and social uses. One aspect of the information-age mindset is that students have little tolerance for delays. Immediacy is expected, services need to be available 24/7, and responses need to be quick.⁹ This finding suggests that libraries would do well to find ways to eliminate delays when helping students. Prompt responses make a significant difference in the decision-making process of whether to use the service.

VENDOR RESPONSE

Although some users may be willing to put up with a modest amount of technical difficulty in using a new product, particularly if it's fun, interesting, or useful, most expect the program to work as advertised. The virtual reference vendors have been actively addressing the problems enumerated above, but the results are mixed. In a project undertaken last year at the University of Guelph, librarians conducted a series of interviews to determine the experience of other libraries using VR software. This study confirmed that the problems described above were generally experienced to some degree by most of the libraries surveyed.¹⁰

Some librarians have made the point that VR software is new and that we're trying to adapt a technology designed for corporate communications to a different use, so we should expect some growing pains when pioneering new territory. This is a valid point, but it also is true that while some librarians may be willing to tolerate considerable frustration,

at least in the short term, most users are not. They just won't come back.

In an effort to adapt to the environment, three major vendors—Tutor.com, Questionpoint, and Docutek—provide the ability to bring users down to a basic (non co-browse) mode.¹¹ Operating in basic mode makes it possible for patrons and librarians to interact, even if the user has security features installed or is using an incompatible browser, but the ability to co-browse is lost, making it little more than a fancy, and unfamiliar, version of IM.

All the variables described previously can add up to making full-featured services such as QuestionPoint, Docutek and Tutor.com burdensome propositions. When everything works together according to design, these can be useful tools for helping users navigate the Web and the intricacies of databases. But as we can see from the long list of issues just discussed, there are many factors that are beyond the control of the library or the user that are potentially working to torpedo the VR transaction. Perhaps Janes is onto something with the notion that IM is preferable to the fancier options.

THE GOAL OF CONVENIENCE

All of this brings us to convenience. Anne Lipow, a respected library consultant, made the point that convenience trumps everything else. She stated:

EMERGING (AND RETREATING) TECHNOLOGIES

This time the Accidental Technologist is shaking things up. Discussion and disagreement welcome.

Sprouting—Mass Digitization of Books

To be fair, this has been going on for a few years. Less-than-perfect scanning quality and less-than-robust metadata have rendered the digitized book collections less-than-user-friendly. There is a critical mass of digitization projects and scanned volumes. Some improvements are being made. Check out Open Content Alliance, Google Books, or Microsoft Live Books. This is just highlighting the most high-profile. They each have their strengths and weakness in relation to the above issues, so explore and see what you find to be the useful features. Feel free to post comments or share other book digitization projects in the electronic version of this article available via the RUSQ Online Companion at www.rusq.org.

In Bloom—Embedded IM

Six months ago I wrote that embedded IM "should be raising the concern of some library chat vendors and the interest of more than a few librarians." I feel more definite now.

MeeboMe, chatango, and other embedded IM applications have arrived. They are the new red carpet stars to watch. This will be bigger than traditional IM.

I picture the patron thought process as, "This is a blank box on a Web page. I type something in that and something happens." Easy. My library has offered IM and Meebo side by side for a few months. Volume for the embedded version of IM is often higher than the traditional IM. Our chat software vendors can one-up the free clients by writing embedded chat applications that also provide the collaborative and administrative features of their software. Now that's added value.

Withering—Co-Browsing

Good idea; never fully realized. Librarians seem to want it more than patrons. Our patrons gravitate to the more simple interfaces of IM and embedded IM. But we persist. We can instruct without sharing a screen with the patron, we do this for telephone reference. Maybe in five years our patrons will want it and the technology will be ready: I don't see the evidence of either right now. Maybe it is time to give this up and focus our concerns and efforts elsewhere.

As human animals, people will go first to the most likely source that is convenient. Convenience is what governs the choice of where to go. As human animals, we are all happy to accept “good enough” that’s handy over best, or even better, that we have to work to get to.¹²

If you give a user the choice between a good enough answer right now and an excellent answer in several hours or tomorrow, good enough right now wins almost every time.

Luminaries of librarianship have reinforced the concept of convenience. Cutter was an early advocate of the model when he urged the “convenience of the reader”; and Ranganathan identified it in his Fourth Law: “Save the time of the reader.”¹³

The Principle of Least Effort, formulated by George Zipf in *Human Behavior and the Principle of Least Effort*, has been applied to information-seeking behavior.¹⁴ As described by Thomas Mann, the principle states that:

Most researchers, (even “serious” scholars) will tend to choose easily available information sources, even when they are objectively of low quality, and further, will tend to be satisfied with whatever can be found easily in preference to pursuing higher-quality sources whose use would require a greater expenditure of effort.¹⁵

Mann backs up this assertion with numerous studies and articles that state the end user will almost always choose ease of use over quality of information, and that this principle extends to users regardless of academic status. Mann then points out the irony of librarians and information professionals ignoring the Principle of Least Effort by blaming these problems on the end users rather than on the design of the library systems.¹⁶

People seek convenience and will use the tools that provide it. Librarians have discovered that one such tool is IM.

IM AS AN ADDITIONAL ACCESS POINT

Many factors, including reliability, ease of use, convenience, and prevalence, combine to make IM an attractive option for VR service. There are some drawbacks to IM, including somewhat cumbersome archiving procedures, difficulty serving simultaneous users (this is subject to debate; some librarians find it easier to serve multiple users using IM), lack of scripted messages, lack of a survey feature, and inability to share the user’s screen (no co-browsing). It should be pointed out, however, that archiving, simultaneous users, scripted messages, and surveys are librarian issues, not user concerns. But one major advantage is that IM almost always works without any hitches. When you IM someone, you are generally able to connect and transmit messages without any problems. No elaborate instructions to follow, nothing to turn off or disable. You can use any browser on any computer.

Results from IM services implemented at a number of colleges and universities have been encouraging, and many libraries have shown significant increases in usage when IM

was added. The University of Illinois at Urbana and Gettysburg College, for instance, experienced a significant jump in overall VR traffic, with IM far outpacing vendor-based chat.¹⁷ Similarly, when Duke University and University of North Carolina-Chapel Hill introduced IM, they found that IM use exceeded chat use. An important finding was that taken together, chat and IM significantly increased their overall VR traffic.¹⁸

Ward and Kern concluded that it was worthwhile to continue running simultaneous chat and IM services at the University of Illinois at Urbana, as each channel seemed to attract different types of users.¹⁹ The additional IM service did cause some technostress, and privacy was a concern, as IM software stores personal information automatically. The challenge is to find a way to discard the personally identifying information while keeping the transaction text.

SUNY-Morrisville has been a pioneer and has offered IM as a way to contact librarians since 1998. Bill Drew, the librarian responsible for the service, explained he uses AOL Instant Messenger (AIM) because surveys of students and staff revealed

most were familiar with AIM. It is also easy to download and install. It is available at no cost to the library or the patron. Any staff member can cover the service by logging in under the “morrisvillelib” screen name. It is also easy to implement by inserting a link into each webpage.

Drew went on to say the library would continue the service because the students like it.²⁰

With IM, real-time online relationships are formed, notes Sarah Houghton. She observes that:

Much of the literature about the evolution of the Web is showing that what makes the Web “go” isn’t the technology, it’s the relationships that the technology makes possible. Instant messaging is a wonderful way for libraries to build sustained relationships with their users, and to show that the library is not only online, but interactive online—a key in the world of today’s online communities.²¹

Penn State, where I work, has been providing chat reference since 2001, and during the past five years has used products from several of the major VR software vendors. These products were and are full-featured services that represent the state-of-the-art in VR software. We recently decided to also offer IM as a complement to our existing VR (chat) service and see if students responded by using it. We chose the Trillian client based on reviews and experiences of other librarians. Trillian supports many popular IM programs, including AIM, MSN Messenger, Yahoo Messenger, ICQ, and IRC. A number of libraries are using Trillian or another IM aggregator for VR (for a list, see http://liswiki.org/wiki/List_of_libraries_providing_virtual_reference_services).

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The Penn State IM service was launched in April 2007 and is staffed by the same group of librarians who staff the chat service. Data is being gathered on user choice of access point. For users who choose IM, we also may begin to discern the effect lack of co-browsing has on online reference service. In addition, we can investigate the added complexity of offering IM simultaneously with chat. Will we be able to effectively multitask and handle chat and IM at the same time?

Overall, the response to using IM for reference service has been positive where it has been tried, and an increasing number of libraries are implementing it.

COLLABORATIVE INSTANT MESSAGING: CAN THE LOGISTICS BE WORKED OUT?

A couple of years ago, Houghton called for a collaborative IM service.²² While many libraries have opted to use popular commercial IM products such as AIM on an individual basis, another emerging alternative is the use of open source software to provide a collaborative IM reference service. Enterprise IM software manages IM networks and using it would give libraries more control over content and policies.

A collaborative Enterprise IM pilot project proposed recently by Tucker-Raymond seeks to: (1) measure the reliability of access to libraries for Web-based and IM patrons; and (2) measure training time and costs for a full-scale project, including such desired library features as co-browsing for

Web clients, compatibility with such adaptive technology as screen readers, shared IM screen names, and strict patron privacy controls.

In this model, individual libraries or collaborative services would provide local service and maintain local branding. However, the infrastructure would be different. Instead of contracting with a software vendor, the service would use established, existing software widely used by organizations other than libraries. It would be part of the open source community. The software would be extensible, and libraries could add new services to the software. It also would be standards-based, enabling transitions to future tools, and it would be hosted by libraries that would have ultimate control over what patron information to keep.²³

This model identifies and acknowledges the shortcomings of current services and proposes solutions. It is an attempt to provide reference services that are more responsive to patron needs and sustainable from the libraries' perspective. Support from the library community for this sort of open source initiative will allow it to realize its enormous potential.

CONCLUSION

Earlier in this column, marketing and promotion were discussed as essential for VR's growth. We have a great service, the argument goes, if only people knew about it. I submit that improved marketing and promotion is only part of the

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answer. For VR to become a more widely used service, it has to be made simple. Users want convenience and simplicity. Librarians who want to reach twenty-first-century users must provide online reference tools that are easy to find and easy to use, and that provide a quick response.

References and Notes

1. Pew Internet Study, "Teenage Life Online: The Rise of the Instant-Message Generation and the Internet's Impact on Friendships and Family Relationships," www.pewinternet.org/PPF/r/36/report_display.asp (accessed May 29, 2007).
2. Bernie Sloan, "Digital Reference Services Bibliography," <http://tinyurl.com/ytxtzl> (accessed May 22, 2007). Anyone interested in learning about the development of virtual reference and all the various technologies that have been used would be well-served by consulting the most comprehensive bibliography on the development of digital reference services, compiled by Bernie Sloan. When last updated in September 2004, this listing contained more than seven hundred entries. Sloan's bibliography is must-stop resource for any research related to the history of virtual reference; Miriam Bonham, "Library Services through Electronic Mail," *C&RL News* 48, no. 9 (Oct. 1987): 537–38; Bernie Sloan, "Early Examples of Digital Reference Services?" *PACS-L*, Mar. 10, 2003 (accessed May 29, 2007).
3. Cynthia Schoenbrun, "EasyNet: What Has Become of the Small Giant?" *Online* 17, no.1 (Jan. 1993): 52–57.
4. Reference and User Services Association, "Guidelines for Implementing and Maintaining Virtual Reference Services," 2004, www.ala.org/ala/rusa/rusaprotocols/referenceguide/virtrefguidelines.htm (accessed August 10, 2007).
5. Steve Coffman and Linda Arret, "To Chat or Not to Chat: Taking Another Look at Virtual Reference, Part I," *Searcher* 12, no. 7 (July/Aug. 2004): 38–46.
6. Joseph Janes, "The Challenge of Staying Current Yet Keeping What Works" *American Libraries* 38, no. 5 (May 2007): 36; www.ala.org/ala/alaonline/inetlibrarian/internetlibrarian.cfm (accessed May 20, 2007).
7. "FireFox Gains Users on Explorer," *FinancialWire*, Aug 2, 2006, 1.
8. "Description of Microsoft Office XP Service Pack3," <http://support.microsoft.com/kb/832671> (accessed Apr. 20, 2007).
9. Pew Internet and American Life Project, "Generations Online," Dec. 2005, www.pewinternet.org/pdfs/PIP_Generations_Memo.pdf (accessed May 20, 2007).
10. Pascal Lupien, "Virtual Reference in the Age of Pop-Up Blockers, Firewalls, and Service Pack 2," *Online* 30, no. 4 (July/Aug. 2006): 14–19.
11. *Ibid.*
12. Anne Lipow, "Serving the Remote User: Reference Service in the Digital Environment," Ninth Australasian Conference, Jan. 20, 1999, www.csu.edu.au/special/online99/proceedings99/200.htm (accessed Aug. 16, 2007).
13. Esther G. Bierbaum, "A Paradigm for the '90s: In Research and Practice, Library and Information Science Needs a Unifying Principle; 'Least Effort' Is One Scholar's Suggestion." *American Libraries* 21, no. 1 (Jan. 1990): 18–19.
14. George Kingsley Zipf, *Human Behavior and the Principle of Least Effort: An Introduction to Human Ecology* (Cambridge, Mass.: Addison-Wesley, 1949), 573.
15. Thomas Mann, *Library Research Models* (New York: Oxford Univ. Pr., 1993), 91.
16. *Ibid.*
17. David Ward and Kathleen Kern, "Combining IM and Vendor-based Chat: A Report from the Frontlines of an Integrated Service." *portal: Libraries and the Academy* 6, no. 4 (2006): 417–29; Ronalee Ciocco and Alice Huff, "IM Working with Trillian" (presented at the Virtual Reference Desk Conference, San Francisco, Nov. 14–15, 2005).
18. Jean Ferguson and Pam Sessoms, "r u there?: Adding Instant Messaging to an Established Virtual Reference Service" (presented at the Virtual Reference Desk Conference, San Francisco, Nov. 14–15, 2005).
19. Ward and Kern, "Combining IM and Vendor-based Chat," 428.
20. Baby Boomer Librarian, "Chat Reference at Morrisville State College Library," <http://tinyurl.com/8mlbm> (accessed May 17, 2007).
21. Sarah Houghton, "U R the Best: Community Building through Chat," Sept. 1, 2005, <http://tinyurl.com/2dak2d> (accessed May 17, 2007).
22. *Ibid.*
23. L-NET Blog, "Collaborative Enterprise Instant Messaging at ALA Midwinter—Part 5, Collaborative Enterprise IM Pilot Project Proposal," <http://tinyurl.com/2etvg6> (accessed May 26, 2007).