

The Virtual Librarian: Using Desktop Videoconferencing to Provide Interactive Reference Assistance

Kathleen M. Folger, The University of Michigan, Shapiro Undergraduate Library

Abstract

Recent technological innovations have made videoconferencing much more affordable and accessible than in the past. Room-based systems that cost thousands of dollars are now being replaced by software programs that work on standard desktop computers. In a joint project at the University of Michigan, the Shapiro Undergraduate Library and the Residence Hall Libraries collaborated to use a desktop videoconferencing program to provide reference service to students located in residence halls across the campus. This paper provides an overview of desktop videoconferencing technology, discusses the University of Michigan project, and considers the future of this technology in libraries.

Emerging information technologies are allowing academic libraries to transform the way they provide access to their resources, and consequently, changing the way patrons find and use information. The global networked environment has made it possible for many users to access a wide variety of resources from their desktop computers, regardless of physical location. Libraries, increasingly aware of such remote users, have tried to provide reference services that will match the needs and expectations of these users. Typically, libraries have used the telephone or electronic mail to assist users not physically located within the library building. Unfortunately, such service does not allow for face-to-face communication between the user and the librarian. This problem could be alleviated with the implementation of desktop videoconferencing for reference service.

Videoconferencing has been available for years; but, previously required specially equipped rooms with tens of thousands of dollars worth of equipment. Over the past few years, a number of videoconferencing packages have been developed that can be used on standard desktop computers. These packages are used to provide a video and audio connection between computers in one of four ways: by ethernet over a Local Area Network (LAN); via the Internet; over regular phone lines, known as POTS (Plain Old Telephone Service); and by ISDN (Integrated Services Digital Network), a special digital phone line.⁽¹⁾ Prices for these desktop videoconferencing applications range from nothing to several thousand dollars. The Shapiro Undergraduate Library of the University of Michigan used a free desktop videoconferencing program for its Interactive Reference Assistance (IRA) project beginning in the Fall of 1995. The project, conducted in collaboration with the Residence Hall Libraries of the University of Michigan, used CU-SeeMe software to provide reference service to students living in campus residence halls. Using the software and inexpensive cameras, students in the residence hall and members of the reference staff in the Undergraduate Library were able to see and hear each other and work collaboratively.

Desktop Videoconferencing in Libraries

While the use of desktop videoconferencing in business and educational settings has been the subject of a number of articles, there has been very little written about its use in libraries. That may be because few libraries have made use of the technology. In the summer of 1996, Eric Lease Morgan at North Carolina State University conducted a project called "See You See a Librarian." The primary goal of the project was "to discover whether or not videoconferencing technology like CU-SeeMe could be used in libraries to enhance information/knowledge services."⁽²⁾ As a result of the project, Morgan concluded that too few librarians had access to the hardware and software necessary to do videoconferencing.

One library that has used desktop videoconferencing for reference service is The Center for Business Information at Emory University. The Center beta tested an ISDN-based package as part of its Virtual Library Project to investigate a variety of new technologies and their implications on the educational process. Using the video system, staff at the Center were able to provide a number of services to students of the Goizueta Business School, including: meeting new students and scheduling appointments with them, answering ready reference questions, using the application sharing capability to work in consultation with the students, and training the students on how to use new CD-ROM products.⁽³⁾ By the end of the test, librarians at the Center concluded that, while users were less enthusiastic about the system than they had anticipated, "desktop video does have potential in library settings where there is remote access to information."⁽⁴⁾

Background Information

As the only library in the University of Michigan University Library system established solely to meet the special needs of undergraduate students, the Shapiro Undergraduate Library (UGL) actively seeks to teach students how to use the, sometimes overwhelming, campus library system. Since most students live in residence halls during their first year at the University, the UGL has traditionally partnered with the twelve Residence Hall Libraries (RHL) on campus to introduce first year students to the University Library. Each RHL is run by a Head Librarian, a graduate student in the School of Information, under the guidance of the Director of RHL, and with the help of a team of undergraduate library assistants.

In July of 1995, the UGL, in conjunction with the Director of RHL, was developing a program to outline the Library's services for students as part of the University of Michigan's annual Welcome Week. In keeping with the theme of the Welcome Week program--"The Future is Now"--the libraries decided to demonstrate CU-SeeMe, a freeware videoconferencing program developed at Cornell University. Based on previous discussion with colleagues and demonstrations of the program at the University of Michigan's School of Information, the UGL librarians knew they could download the program for free and run it on the Macintosh computers available in the libraries. The only additional equipment needed would be small black and white cameras, which could be borrowed from other units on campus for the demonstrations. During the week, connections were set up between the RHL and the UGL and students were given the opportunity to speak to staff at the UGL. Student reaction to the demonstration was so enthusiastic, the UGL and RHL decided to incorporate the technology in a new reference service called Interactive Reference Assistance (IRA).

Planning and Implementation

The goal of IRA was to see whether desktop videoconferencing could be used to provide reference service to students located in residence hall libraries across campus. Since there was no funding in the reference budget for the project, it was important to establish the service as inexpensively as possible and without any additional staffing. CU-SeeMe was the natural choice for the project. There was no cost for the program, since it was freeware, and it would run on the computers available in each of the libraries (Centris Macs with 8 Mb of RAM in each RHL and a Power Mac with 16 Mb of RAM at the UGL). The only cost would be for the

purchase of cameras, which cost approximately \$99 each, to transmit video. The funding for the cameras was provided by the University Library's Assistant Director for Digital Library Initiatives who saw the project as a natural service extension of the digital library concept.

Once the cameras were purchased and the decision to use CU-SeeMe made, a small group of librarians at the UGL began exploring how best to use the technology. They found CU-SeeMe can be used in two ways. The first is a point-to-point connection in which one computer is directly connected to another. The second uses a UNIX-based reflector site to allow multiple-party videoconferencing. None of the UGL staff had the experience to run a reflector site; and, while it is possible to connect to public reflector sites, there were concerns about both the lack of privacy for patrons and the network etiquette involved in using such a site for the project. Because of those concerns, it was decided to use the point-to-point connection, which meant only one RHL could be connected to the reference desk at a time. Since not all RHL would be able to participate, Head Librarians were asked to volunteer to host the project. Three libraries were chosen to participate the first semester. Prior to the start of IRA in October of 1995, training was conducted during UGL reference staff meetings. The training consisted of setting up a CU-SeeMe connection between two computers, setting up the camera, addressing common problems, and practice adjusting audio and picture controls. UGL reference staff and participating Head Librarians attended the training and were given handouts outlining connection steps and troubleshooting methods. In addition, a group e-mail list was established so participants could post questions or comments to the group.

During the Fall and Winter semesters of the 1995-96 academic year, the UGL was connected to a RHL two evenings per week for two hours at a time. Additionally, during the Fall semester, the University of Michigan's Engineering Library was connected one evening per week to a RHL for two hours as well. On the designated evenings, the librarian at the UGL reference desk would open the CU-SeeMe application and wait for the RHL to make a connection. The reference staff would keep an eye on the computer terminal while continuing to answer reference questions from patrons who came to the desk or called on the telephone. The UGL reference staff had discussed work flow questions prior to beginning the project and had decided video questions would be treated like phone calls and given the same priority. This meant questions from patrons at the reference desk would take priority over any video questions. If staff had to be away from the desk to help patrons, a sign was placed in front of the camera saying, "Be Right Back!"

In order to advertise the service, flyers were posted throughout the participating residence halls and the UGL. Small flyers were placed in each resident's mailbox, and table tents were put in the dining hall. Information about IRA was posted on the campus television system and an official press release was sent to local, state and national media.

Reaction to the Project

Although many students in the residence halls came to look at the technology, few of them actually used the service to ask reference questions. Over the course of two semesters, fewer than twenty students actually asked reference questions, but the response of those that did was very positive. Each of the students who used the service indicated he or she would use service again and many indicated they wished the service were available more hours. The types of questions varied, but were usually ready reference requests, rather than in-depth research questions.

The librarians who participated in the project were enthusiastic about the potential of the technology, but acknowledged there were some shortcomings with the service. One of the major problems with IRA was the inconsistent quality of the audio and video. Some evenings the performance was so poor, it was better to communicate by phone. Much of this problem can be attributed to the nature of network-based

videoconferencing programs, such as CU-SeeMe. Videoconferencing programs that operate via LAN or the Internet are highly dependent on bandwidth--the amount of data that can be sent through a communications circuit per second.(5) When videoconferencing over a network, the video and audio transmissions must share bandwidth with the other users of the network. Consequently, the quality of the videoconference will vary greatly, depending on, among other things, how congested the network is. At the best of times, network-based packages transmit video images at a rate of 15 frames per second (fps). By contrast, broadcast television transmits at 30 fps. With IRA, the transmission rate was usually 1-5 fps, resulting in images similar to those received from astronauts broadcasting from outer space. The sound quality was also affected by network congestion. On some occasions the audio was so garbled all or parts of the conversation were unintelligible.

The lack of technical support or knowledge on how to troubleshoot these sorts of problems proved to be another source of frustration for the UGL librarians. As freeware, CU-SeeMe doesn't come with an owner's manual or toll-free technical support. This meant a lot of trial-and-error experimentation resulting in varying degrees of success.

Even when IRA was running well, the librarians noticed an unexpected problem with the service--there were several instances of miscommunication between the librarian and the student because the two were unable to see each other's computer screens. Being unable to see and point to the screen also made it difficult to effectively teach the students how to use the library's resources. The librarians often found it was easier to just give the students the answer to the question rather than showing them how to find it for themselves

It was interesting to note how self-conscious some students and a few staff were while on camera. Many of the students commented on their appearance and several of them expressed dismay at how their hair looked. Some students even refused to get within range of the camera, a phenomenon that had been reported by the librarians at Emory University.(6)

The Future of Desktop Videoconferencing

The librarians at the Shapiro Undergraduate Library continue to explore the potential of desktop videoconferencing for reference service. Hoping to expand and improve the service provided by IRA, they have invested in color cameras, an application sharing program and a commercial, network-based videoconferencing package. They have also explored the possibilities of setting up a reflector site and working with the campus computing centers.

Other libraries at the University of Michigan are also exploring the use of videoconferencing for reference service. In February of 1997, the Science Library and the Media Union Library began testing two-ISDN based programs. These types of programs have several advantages over the network-based packages. In addition to transmitting images at a higher speed, many of the programs include additional features such as software for application sharing and an electronic whiteboard. Also, most of the ISDN-based products now support the International Telecommunications Union's H.320 standard, a set of video-and audio compression standards, which allow different videoconferencing programs to communicate with each other. (7) Although more expensive than network-based programs--the average price for an ISDN-based videoconferencing package is \$1500--prices are expected to drop substantially.(8)

While the focus at the University of Michigan has been on desktop videoconferencing for reference service, there are other possible uses of the technology in libraries. Videoconferencing could be used, for example, for telecommuting, faculty outreach, or collaboration with colleagues at other institutions. In order to take

advantage of the technology for these or other uses, libraries must begin investing in the necessary hardware and software to begin exploration. It is only through experimentation with desktop videoconferencing that any potential uses will become reality.

Acknowledgments

The author gratefully acknowledges the tremendous support and enthusiasm given to this project by the staffs of the Shapiro Undergraduate Library and the Residence Hall Libraries. A special note of thanks goes to Valeda Dent, RHL Director; Linda Ter Haar, Head of the UGL; and Barbara MacAdam, Head of Educational and Information Services for the University of Michigan University Library.

Notes

1. McClelland, Deke, "The Video Connection: Videoconferencing--Desktop Fact or Science Fiction," *Macworld*, May 1996, 85.
2. Morgan, Eric Lease, *See You See A Librarian* Final Report, URL:
<http://sunsite.berkeley.edu/~emorgan/see-a-librarian/> (<http://sunsite.berkeley.edu/~emorgan/see-a-librarian/>)
3. Pagell, Ruth A., "The Virtual Reference Librarian: Using Desktop Videoconferencing for Distance Reference," *The Electronic Library* 14, no. 1 (February 1996): 21-26.
4. Ibid., 25.
5. *Free On-Line Dictionary of Computing*, URL: <http://wombat.doc.ic.ac.uk> (<http://wombat.doc.ic.ac.uk/>), s.v. "bandwidth."
6. Pagell, "The Virtual Reference Librarian," 25.
7. McClelland, "The Video Connection," 85-86.
8. "Talking Pictures," *Fortune*, Winter 1997, 144.