

Interactivity in E-Learning: Case Studies and Frameworks

Haomin Wang
Dakota State University, USA

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Chapter 15

Embedded Librarians: Delivering Synchronous Library Instruction and Research Assistance to Meet Needs of Distance Students and Faculty

Sheila Bonnard

Montana State University, USA

Mary Anne Hansen

Montana State University, USA

ABSTRACT

This chapter reports on one academic library's experiences with expanding instructional services by adding synchronous library instruction to better serve its online students and faculty located across the globe. Web conferencing software allows librarians to provide interactive, high-touch library instruction for online students equivalent to the experience of students in traditional face-to-face courses. While providing this real-time instruction on library resources and research skills, librarians are embedding themselves in online programs, becoming more readily accessible to online and distance students. By meeting the changing needs of academic library users wherever they are, librarians are reaffirming their integral role and relevance as partners in the educational endeavor.

INTRODUCTION

Librarians have long played an important role in the academic success of students and have traditionally provided on-campus students with face-to-face instruction on research and informa-

tion resources; librarians also play an integral role in facilitating lifelong learning. The Internet and online courses have changed the ways that libraries deliver research tools and resources in order to meet the needs students and faculty whatever their location. To remain relevant as instructors and to meet the information and research needs of

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distance and online students and faculty, librarians must go beyond providing web-based resources and static tutorials. It is not enough to be available within online courses for email and chat queries from students. For librarians to be truly embedded in the virtual academic enterprise, online library users should have the option to meet with librarians in real-time. The ability to provide live, synchronous library instruction allows librarians to offer interactive, high-touch research instruction, an experience similar to that of a face-to-face class. MSU librarians are using Adobe® Connect™ web conferencing software to deliver live library instruction sessions to students and faculty wherever they are located. This chapter discusses the successes, challenges, and surprises that librarians at Montana State University (MSU) have had in implementing synchronous library instruction to improve library services for distance and online students and faculty.

SERVING ONLINE STUDENTS

According to the Association of College and Research Libraries' (ACRL) *Standards for Distance Learning Library Services* (2008):

"Every student, faculty member, administrator, staff member, or any other member of an institution of higher education, is entitled to the library services and resources of that institution, including direct communication with the appropriate library personnel, regardless of where enrolled or where located in affiliation with the institution. Academic libraries must, therefore, meet the information and research needs of all these constituents, wherever they may be" (Executive summary, para. 1).

Fulfilling this mandate is becoming increasingly important as the number of distance and online courses continues to grow. Statistics from the 2006-2007 National Center for Educational Statistics (NCES) suggest that 66% of postsec-

ondary institutions were offering distance courses of some kind, whether online or hybrid (Parsad, Lewis, & Tice, 2008, p. 2). This number represents an increase of 10% from the 2000-2001 NCES survey (Waits, Lewis, & Green, 2003, p. 4). Though MSU has been involved with distance education for almost three decades, the number of courses has been relatively small and the institution has gathered few statistics. However, the statistics available suggest that MSU meets this trend of continued growth of distance education. As of spring semester 2010, 10% of MSU students were taking at least one class online while during the 2010 summer session 32% of students were enrolled in an online class.

The rapid expansion of online and distance instruction in higher education poses a number of challenges for academic libraries. Pival and Tuñón wrote in 2001 that "Bibliographic instruction (BI) is one of the major challenges facing libraries that support distance students" (2001, p. 347). To meet the library and information needs of students and faculty in this new environment, both on campus and at a distance, librarians must innovate. Cooke writing a few years later stated that, "Libraries cannot rest on their successes with traditional on-campus students; rather they must reinvent their support and services to accommodate distance learners" (2005, p. 55). To accomplish this, not only must ACRL distance education standards be applied, but libraries also have a responsibility to meet ACRL's information literacy standards which state that such standards are to be integrated "across curricula, in all programs and services" and that "competencies for distance learning students should be comparable to those for 'on campus' students" (Association of College and Research Libraries, 2000, para. 2). In standard 2.E of the new standards from MSU's regional accrediting agency, the Northwest Commission on Colleges and Universities (NWCCU), the importance of library support and information literacy instruction for students, faculty, and others involved in the institution's programs "...wherever offered

and however delivered” is stressed (Northwest Commission on Colleges and Universities, 2E – Library and Information Resources section, 2010).

Who is this online learner? Generally, he or she is a student who “is constrained by distance, time, family or work responsibilities” (Caspers, Fritts, & Gover, 2000, p. 130). When online courses first started, participants were generally older (25 and up), working adults with some higher education experience already. That demographic soon changed and as early as 1999, NCES statistics suggested that enrollment represented a number of age groups as well as undergraduates and graduates. Many online courses are also attended by students not at a distance but on campus, for a variety of reasons (Palloff & Pratt, 2003, p. 3-4). MSU has followed these trends. Courses are designed for students truly at a distance but increasingly courses are being made available online or have an online component and are taken by both distance students and those on campus. According to Chakraborty and Victor, the main reasons students take online courses are “Convenience and flexibility....” (2004, p. 98). The rise in the number of online courses makes it even more important that librarians go where their users are located in order to meet their information needs.

SYNCHRONOUS LIBRARY INSTRUCTION

In order to provide equivalent services for online students and to meet professional standards, librarians at Montana State University have worked to meet the challenges and seek new opportunities in the world of virtual education. Recognizing that online courses and programs at MSU are only continuing to increase in number, MSU librarians explored ways that other distance librarians across the United States were reaching out to provide library services and resources to online students. One method for reaching online students that came to their attention was the use of web

conferencing software for delivering live library instruction. Web conferencing allows librarians to meet with the online learner in real-time to demonstrate relevant resources and strategies for searching them effectively.-

Web conferencing software emerged at the beginning of the 1990s, though the early commercial versions were generally expensive and had limited functionality and performance (Henning, p. 235). Libraries soon began experimenting with this software. However, in 2009, Lietzau and Mann reported “...a scarcity of research conducted within the past five years on the ... use of Web conferencing software packages to provide virtual synchronous, curriculum or course-related learning opportunities” (2009, p. 109). This observation remains true for libraries based on the literature reviewed for this chapter.

Pival and Tuñón reported that the Einstein Library of Nova Southeastern University in Florida experimented with Microsoft’s NetMeeting in 1997 and “began delivering remote library instruction ... in April of 1998.” In this case, students met at three or four remote sites. The training was well received by participants. A later software upgrade added the capability of including a video of the instructing librarian at the start of a class. Students reportedly “... liked seeing who was speaking to them” (2001, pp. 351-353), adding early support for the importance of a ‘face’ in the virtual environment.

In an effort to better support students at a distance, the library at the University of Northern British Columbia tried LearnLinc software. This was “a highly interactive synchronistic product” that met with “limited success” because of problems with the technology. The problems included a lack of compatibility with student computers and with some of the library’s databases (Black, 2000, pp. 52-53).

Henning described the use of “desktop video conferencing” but this experiment again relied on designated computers at satellite sites which limited its flexibility. Henning observed that when

working with technology, “glitches happen.” She also reported that issues with peripheral devices, both audio and video, can “make or break” a web conferencing session (2001, pp. 243-244). Both issues were confirmed by MSU librarians during their web conferencing pilot project.

Two other studies purport the usefulness of web conferencing for reaching remote users. McCarthy’s study comparing a library and information science course taught on-site to one using web conferencing to a remote site concluded “that interactive video technology is an effective pedagogical tool” (2004, p. 25). Additionally, Docherty described using webinars but for professional development rather than student engagement. However, her experiences led her to conclude that the technology could be employed “... to serve and instruct patrons and staff when and where they need it” (2004, p. 226).

Since these early experiments, interactive software has become more sophisticated, especially in its ability to allow users access from wherever they are. Students can log in from home, from work, from other libraries – anywhere there is a computer with a connection to the Internet. These web conferencing programs, like much software, have a high degree of functionality, but their basic features allow the instructor with average computer skills to get started easily.

MSU librarians made the decision to meet students virtually, but doing so required software that the Library at MSU did not have. Initial explorations of possible web conferencing software, and especially the cost of that web conferencing software, influenced MSU librarians to favor Adobe® Connect™ over other web conferencing software options. The decision to pursue this software for meeting students virtually was expedited by the opportunity on this campus to apply for funds through MSU’s Teaching and Learning Committee, which yearly funds proposals of up to two thousand dollars through its Instructional Innovation Grants. Two MSU librarians successfully applied for a grant and used the funds to purchase

access to Adobe® Connect™ for two years. They were also able to buy webcams and headsets for the nine members of the library’s reference team.

An additional reason for choosing this software arose through a partnership with another entity on campus, the Burns Telecommunication Center (BTC), which made it possible to get access much more cheaply through a shared subscription rather than the library subscribing alone. However, Adobe® Connect™ does include features that were important to MSU’s pilot project, cementing the decision to opt into a group subscription with the BTC. Other than cost, ease of use was a priority. While Adobe® Connect™ has very sophisticated features, it can also be used easily ‘right out of the box.’ This web-based software is also easy for the end user, requiring only a quick plug-in on the first use. Because it is inevitable that not every student would or could attend a session, the ability to record sessions was also a priority; the fact that these recordings can be edited was an important criterion in the decision about which web conferencing software to purchase. Scales and Cummings summarized their review of an earlier version of this product by calling it “a very sophisticated tool that is flexible and powerful” (2009, p. 9), and it has been found to be so during MSU’s web conferencing pilot project. Adobe® Connect’s™ flexibility and ease of use allows students to participate wherever they are without requiring travel to satellite sites or designated computers.-

LIBRARY SUPPORT FOR ONLINE LEARNERS

The MSU Library has been serving online students since its campus started offering courses online and the librarians there are always working on initiatives to improve those services. Goodson’s observation that “...distance education students are often the victims of benign neglect on the part of their institutions...” (2001, p. 3) does not apply

to this institution. A member of the reference team has served as the library's distance education coordinator since the early 1990s, document delivery services are in place, and electronic resources are generally the preferred format for acquisitions. Patrons have the option to call, email, chat, text, or instant message reference questions. Reference librarians can take appointments for one-on-one consultations either in person or by telephone as part of the library's Research Assistance Program (RAP). The implementation of web pathfinders has made subject and course guides to specific library resources and services readily available online. A librarian role has been established in D2L, allowing instructors to add a librarian in a support capacity similar to that of a teaching assistant. However, except for telephone RAPs, none of these services is synchronous. Also missing is personalization, that direct contact with students that gives a face to the library.

Adding a live online instruction option embeds the idea that librarians and library resources are available to online and distance students in addition to on-campus students. For close to two years, MSU librarians have offered real-time, synchronous library instruction sessions for online students and faculty. After implementing web conferencing software, MSU librarians found that many of the distance students involved had not known that the MSU Library was an option for them until attending one of these sessions. Others have also reported that distance students, and often faculty members, do not realize the availability of their institution's library services and resources for online courses (Thomsett-Scott, 2009, p. 113). Reference librarians work to build relationships with students at the reference desk and in face-to-face classes so that students will be comfortable seeking help at a later date or for other courses. This practice holds true in the online environment where, according to Bower, a "...live interaction establishes a foundation between the librarian and remote students so that future interactions are more likely to follow in subsequent courses"

(2010, p. 479). The ability to meet synchronously with online students, to embed research instruction in online classes and programs, provides MSU librarians the ability to make connections with distance students especially, but also to on-campus students taking classes online. A recent library instruction session included students as far away as Dubai but also some from the local area. Graham stated it well: "... there is, in fact, no distinction between distant and local" (2009, p.46) in the current technological library world.

WEB CONFERENCING PILOT PROJECT

Over the nearly two years that MSU librarians have been providing synchronous library instruction via Adobe® Connect™ web conferencing software, they have delivered around 25 instruction sessions to approximately 300 students. A dozen or so different instructors teaching a spectrum of online courses have tapped the synchronous instruction services of MSU librarians since their pilot project started in 2009. These librarians have provided library instruction for both undergraduate courses and graduate courses; additionally, they have worked with some non-course-related groups needing to connect constituencies in real-time across the vast expanse of the state of Montana for various learning endeavors. The greatest success in repeat clientele using real-time instruction services has been with MSU's Master of Science in Science Education (MSSE) program, the largest fully online program at MSU. This online program offers K-12 science teachers the opportunity to complete a master's degree in science education from wherever they are without having to move to attend a face-to-face program. As such, it includes students from all across the United States, a few in Canada, plus a handful teaching in such far off places as Turkey and Thailand. Following the first semester of real-time instruction sessions, MSSE program directors and

instructors praised this online library instruction and claimed it to be an essential component of the program, especially with the Foundations of Action Research course, thus establishing library instruction via web conferencing as an integral component of the course. The major reason for the MSSE program integrating real-time library instruction into their curriculum each semester was that instructors saw a dramatic increase in use of the MSU Library subscription resources by the MSSE students and a corresponding rise in the inclusion of quality resources cited in their assignments following the initial real-time library instruction sessions with their students.

At the beginning of each live instruction session, students are asked about their library usage: do they use the MSU Library, other libraries in the MSU system or their local libraries? It has been surprising to learn how many online MSU students have never used, or do not regularly use, the resources offered by the MSU Library, which provides far more databases and online journals than most online students would have access to through a local public library or small college library. Many online students have reported that they did not realize that MSU Library resources and services were available to them since they are not in face-to-face programs. In addition to connecting online students to library resources that are rightfully theirs to take full advantage of, live instruction sessions connect the students via webcam to friendly faces in the MSU Library that they can contact for questions about their research or access to resources. Prior to MSU librarians' use of web conferencing, the library's web page offered links to contact information about librarians, but this recently integrated, embedded role in online courses makes librarians far more accessible to online students. MSU librarians who teach via web conferencing are getting more research inquiries directly from online students, plus there has been an increase in overall reference statistics from online students since the debut of real-time library instruction. Like Lietzau and Mann, MSU

librarians have found that the faculty members and students involved in the pilot sessions "... consider web conferencing an enhancement to learning in the online environment, and they appreciate the interaction it provides" (2009, p. 116).

SERVING A WIDER CLIENTELE

When this pilot project began, it was anticipated that real-time library instruction would be provided solely to students and faculty in online courses. However, soon after beginning the web conferencing project, other campus units expressed interest in providing instruction to their staff and constituencies outside of MSU online courses. These groups included two federal grant-funded projects, one a National Institutes of Health (NIH) project and the other a National Library of Medicine (NLM) grant project. The NIH sponsors the MSU Center for Native Health Partnerships (CNHP), a community-based program to educate Native peoples on Montana's seven Indian reservations about health issues. Each reservation has a CNHP Community Organizer, a Native person employed to be the point person for the tribe on CNHP projects. MSU librarians were enlisted to provide library research training to these seven Community Organizers, who in turn are using their MSU Library research knowledge to help their local tribal constituencies research their own health-related topics.

The other grant-funded group interested in web conferencing was an NLM-sponsored Health Education for Rural Elderly (HERE) project that provided five real-time health information webinars over the course of several months to senior citizens in four rural communities in eastern Montana that are geographically isolated from major cities and all that cities have to offer regarding health facilities and health information providers. These rural seniors gathered in their local senior centers for each live webinar with MSU librarians, the HERE grant directors, and the various health

information content presenters for each session. The use of web conferencing for both of these grant projects included the use of speaker phones in a conference room equipped with a computer and projector to make the sessions as fully interactive as possible. Participants could hear the presenters and they in turn could ask questions about the content being taught. While nontraditional teaching opportunities were a surprise, the chance to collaborate with these two grant projects on the MSU campus provided additional opportunities to use web conferencing software in new ways and to learn more about the meeting and teaching options available with it. Additionally, as the state's land grant university, it is within MSU's mission to provide outreach to not only immediate campus constituencies, but also to the citizens of the state. Both projects enabled collaboration with MSU constituencies and the clientele they serve in isolated pockets across Montana, further embedding the library within the academic community and the state as a whole.

Other non-course uses of web conferencing software have included sessions to explore professional development and training with several tribal college librarians from across the state; since all of Montana's tribal colleges are land grant institutions, it is within MSU's mission to provide them with outreach and training. Additionally, MSU librarians have used this web conferencing software for a number of other professional uses, including informal training on software products with librarians in other states. Adobe® Connect™ has also been used to conduct meetings among co-presenters in preparation for conference programs. Web conferencing has proven to be a valuable tool for service efforts as well, including meeting online in real-time with co-committee members on state and national library association committees, including the American Library Association and the Montana Library Association.

PILOT ASSESSMENT

Assessment has been an important component of this web conferencing pilot project. Just as it is important to assess face-to-face library instruction, it is equally important to assess instruction via web conferencing because student and instructor feedback will lead to improvements in format, content, and technical issues. Furthermore, gathering evaluative information about the impact of services on student learning is essential for multiple reasons, including tenure and promotion, ongoing and even improved financial support for the library, and accreditation.

An online evaluation form was used after each real-time instruction session to gather student input. The librarians emailed a link for the questionnaire to the course instructor, along with a link to the URL for the recorded library instruction session for him or her to post in the D2L course shell, allowing students who could not attend the instruction session synchronously to view it when convenient and also provide feedback on the recorded session. Additionally, students who were able to attend the real-time session could both provide feedback and watch the session again at their convenience.

Students were invited to provide feedback on each of the following points in the online survey form: name (optional); number of online courses currently enrolled in; how they viewed the course, i.e., synchronously or via recording; rate the quality of the technology; rate the quality of instruction; rate overall experience; name at least one thing they learned in the session; state one thing that should have been covered but was not; and any additional comments. The response rate for this optional feedback opportunity from the 300 students participating in the pilot has not been very high, with only about 25% completing a survey. This is not unlike the response rate for face-to-face classes at MSU. However, the feedback received still has yielded some valuable

information for improving these online library instruction sessions.

Overall satisfaction with the sessions among participants was positive. For example, 70% of those responding indicated that the instructors were well versed in the content of the class with another 19% rating the instruction a four on a scale of one to five. When asked to rate the overall quality of the instruction session (technology plus instruction) on a scale from one (dull) to five (very engaging), 40% indicated that the session was “very engaging” and 38% rated it at a four. Coming from approximately 22% of respondents, lower ratings for the overall experience correlated with comments on difficulties with the technology.

Probably the most surprising information gathered from comments on the feedback forms was the number of distance students who did not realize that they could log in to MSU Library’s subscription databases and journals from a distance. A few students even believed prior to their library session that MSU Library services and resources were not available to them. What follows is a sampling of some positive student comments gleaned from feedback forms:

“I have not used the MSU library for any of my previous courses simply because the web-site looks so daunting. Most of my fears have been laid to rest. Thanks!”

“The overview of library resources was excellent and I have already accessed some resources as a result of the session.”

“I was very thankful for the session. I was really nervous about how I would be able to access information I need to complete my project. I feel much better now!”

“The library services for the virtual students was clearly confirmed. For example, I am now certain that the MSSE online students can easily obtain interlibrary loans and books from the MSU library.

Now I can better direct students to get resources from the MSU library.”

“Dialogue was helpful—allowed students to get questions answered and made direct link to library personnel for future help. Thank you so much!”

“I was impressed with how helpful this service will be.”

“I love being able to see the computer screen in the demonstration.”

“Awesome vehicle for instruction!”

“I thought it was well done, and 45 minutes was about right in length.”

Student feedback also yielded some helpful comments for improving web conferencing instruction, especially early on in the pilot project. One pedagogical issue revealed in the sessions was the need with some classes, especially lower division courses, to do some pre-instruction and perhaps post-instruction follow up. Unsurprisingly, the largest number of responses to the question of how to improve these sessions mentioned technical difficulties. Among the various technical issues gleaned through student feedback was screen size and this reinforced the importance of enabling the full-screen toggle for students so that they can enlarge their screens for clearer viewing of the instructor’s desktop being pushed during database demonstrations. The other major technical challenge discovered was that the software is intended for reaching students individually in remote locations, not as a group in large classroom or computer lab where sound issues make it almost impossible for some students to hear the librarians. Here is a sample of comments from student regarding issues and challenges or suggestions for improvement:

"My screen was fuzzy. I didn't realize that I could enlarge it til almost the end."

"There were a lot of people on line in the room with speakers on so it was very hard to follow. I think this would be better on a personal level. I will try to access the library and now I know who to contact if I have trouble."

"I think a pre-session information sheet or agenda may have been helpful so that we could direct our thought process, but overall very good."

Instructors also provided valuable feedback, including the following comments:

"The sessions were great. I think there was a good balance of content and the presentation was dynamic. The sessions were rich in content and also helped to motivate students to use the MSU resources and to ask questions if they have problems. These sessions "opened the doors" of the MSU library to the virtual students. Thank you very much. I have few things to share: (1) For the people who had trouble hearing the audio, does Adobe® Connect™ Pro have a phone bridge option for those people. (I did not see this option on my page. Wimba has that option. People on dial ups might need a phone option for the audio). (2) It was difficult the read some of the Web pages displayed. If the areas of the page can be enlarged (zoomed in on) as they are used, it might help. Sometimes I was not able to read the text but I could see area of the page and listen to the description. I have a high speed DSL Internet connection and a rather fast computer and think that I might be able to see better. (3) It might be nice to have a possible follow up session while the students are actually using the resources for their conceptual framework. (This is just an idea for the future.) I think that many students will better understand that value of a library session or have questions once they are actually writing their conceptual framework section of their papers."

"Thank you so much for putting these sessions together. Initial feedback indicates that the sessions were of great value to our teachers. I'll pass on comments/thoughts from our instructors as I receive them. This is a great service to MSU's online students ... I suspect that we'll want to make them a regular part of our EDCI 505 courses each spring. "

"Just wanted to pass on a comment from one of our instructors regarding the MSSE Adobe® Connect™ session last night ... great job! These sessions will make such a difference in the comfort level for our distance students regarding library resources and access. This is a wonderful service ... thank you!"

BEST PRACTICES

These experiences with delivering library instruction via web conferencing software have provided some important lessons and the discovery of a few best practices. First, it was determined early on that the optimal length of time for a real-time instruction session, even with graduate students, is 45 to 50 minutes, a best practice confirmed by Docherty and Faiks (2005, p. 215). Any longer than that and participants have difficulty staying focused and interested in the lesson.

Additionally, online library instruction sessions are best delivered by two librarians working in tandem, with one delivering parts of the content on one computer, while the other monitors chat on a computer logged in to the participant view. This format allows the second librarian the ability to monitor that view for lag time in the transmission of database searches and library website navigation. Chat questions can also be fielded so that the librarian instructing can stay focused on the material being presented. While it is more labor-intensive to have two librarians teaching every online session, it provides for a more seamless and interesting experience for the online student.

MSU librarians have not experienced demand for real-time instruction to the point where the two-librarian instruction model is no longer sustainable. Kontos and Henkel reached a similar conclusion after their experiences using Wimba Live Classroom for online instruction, stating that such classes can be taught effectively by one instructor but that "... it is highly desirable to have two" (2008, pp. 5-6).

After a few initial web conferencing instruction sessions, it was also found desirable to ask participants to log in 10 to 15 minutes prior to the start of each session. This practice provides time to conduct sound checks and determine if anyone is experiencing technical difficulties without using up valuable instruction time. A bonus of building in the extra time is the opportunity to chat informally prior to the start of class with students as they log in, for example welcoming each participant individually, finding out where they are located, and answering their initial questions.

Another best practice for real-time library instruction is to include one or more polls for students to read and take as they are logging in prior to the start of the session. The use of polls serves to provide useful information about the students participating in the class, and it gets students interacting from the moment they log in to the live instruction session. Polls have been used, for example, to ask MSSE students, almost all of whom are educators out in the field, what grade levels they teach and what library or libraries they use, whether the MSU Library or another.

When MSU librarians first launched their Adobe® Connect™ pilot project, they anticipated that a best practice would be to initially greet each class over the webcam and then shut the camera off to avoid taking up too much bandwidth. However, experience has shown that the webcam can be left on the entire time, the bonus of which is to provide students with the enriched experience of both hearing and seeing their librarians during the instruction. Pival and Tuñón had the same result in their early experiments with web conferencing.

They found that students responded positively and "liked seeing who was speaking to them" (2001, p. 353) when a video image of a librarian was included in the instruction. Several MSU students have commented on library instruction evaluations that they really appreciate the human element included in the instruction sessions.

CHALLENGES WITH WEB CONFERENCING

Throughout the experience working with web conferencing for library instruction, technical difficulties were the most frequent problems encountered. A few students had issues with sound quality. The best fix for this issue is to have the student close out of Adobe® Connect™ and log back in again. When the sound quality just cannot be improved, a good practice is to send the student a chat message indicating that he or she might elect to wait for the URL to the recording of the session to be distributed and try viewing that for better sound reception. Another issue involves screen size. Students on small laptops or netbooks will find that there is a full screen toggle feature in Adobe® Connect™ that allows them to view a larger image of the desktop or files being shared by the instructor. Once students elect to use the full screen toggle, however, they lose the ability to monitor the chat questions from other students. In addition, they must toggle back and forth back to the smaller image in order to access the chat feature to pose any of their own questions. This issue of participants encountering technical problems is not unusual and has been a recurring theme since experiments with web conferencing began to be reported in the literature. Black, reporting on her library's trial of LearnLinc software wrote that those involved "didn't anticipate ... the technical difficulties encountered ..." (2000, p. 53). Lietzau and Mann surveyed students who participated in a class using Wimba web conferencing software and "... more than half mentioned technical or soft-

ware/hardware problems as a drawback” (2009, p. 112). MSU librarians also discovered early on that this software cannot be used as broadcast medium. One of the first sessions conducted was with a group of MSSE students who had gathered in a classroom at a remote site. Audio feedback between the librarians and the remote instructor who was using a microphone made it difficult for the students to hear.

When working with students located across the country and beyond, finding a common meeting time can be an issue because of the number of time zones involved. Bower and Mee mention the necessity of “compensating for time differences” (2010, p. 481) when instruction takes place via web conferencing. At MSU, librarians found that it was important to offer the option of several instruction sessions at different times and on different days. Instruction often takes place in the evening or on Saturdays. Providing the option of watching a recording was found to be another way to accommodate time zone variation.

Another challenge that MSU librarians have encountered in providing real-time library instruction via web conferencing is in the promotion and acceptance of it. Other than the MSSE program eagerly adopting this valuable service, there has not been widespread demand among other online courses or programs. It has become clear that there is a need to continually market this service in order to get more online faculty to adopt its use and integrate it into their courses regularly. Part of the issue lies in the practice that many online courses across the curriculum rotate among departmental instructors semester by semester, so that someone who was an adopter of this service one semester might not be teaching an online course for another year. The other major issue encountered is the lack of familiarity and newness of web conferencing among faculty on this campus. Some faculty who are new to online instruction may feel overwhelmed in just developing and teaching one or more online courses; instructors faced with their own learning curve with online teaching may be

less motivated to explore online instruction with librarians because it is one more effort they will have to take for the course. Marketing efforts have emphasized that integrating real-time library instruction into an online course will not entail more work for faculty members other than posting the announcement in the course.

FUTURE PLANS

Once the pilot project grant funds for Adobe® Connect™ were exhausted, MSU librarians approached their administration about adding a subscription as a line item in the annual library budget, noting usage statistics and successes in meeting the needs of remote library users. Library administrators agreed that online library instruction with web conferencing should continue, and thus is a worthy expenditure of library funds. MSU librarians will continue providing synchronous instruction while also exploring ways to enhance the real-time instruction experience for students. One means for providing better interaction is the inclusion of the Adobe® Connect™ add-on feature of internal phone conferencing so that instructors do not have to rely on chat but can hear directly from students. The BTC, from whom the MSU Library subcontracts, has added this service to their base subscription, but there is an added per minute charge. MSU librarians will explore additional budgeting implications for utilizing this interactive audio feature of Adobe® Connect™.

Other plans for future uses of web conferencing for library instruction include experimenting with co-browsing with students so that they can take control and play more of a discovery role in trying database searches themselves with the librarians guiding them. This could be especially effective if demand grows for online RAP (one-on-one consultation) sessions. Additionally, MSU librarians will explore editing instruction session recordings. To date, the librarians have recorded every real-time instruction session in order to

provide a means for those who could not fit live sessions into their schedules to view the recordings after the fact; recordings also provide a means for review for those who were able to attend the synchronous instruction session. However, they have not yet experimented much with editing the recordings, to delete, for example, unnecessary pauses and lag times to make a more professional copy.

MSU librarians will also continue efforts to promote this service to faculty members teaching courses online. The success with web conferencing to date has been the result of personal contact with faculty members in liaison areas and word of mouth. Plans are in place for librarians involved with the pilot project to make a presentation to faculty at an on-campus technology conference. Other plans include getting on the agenda of departmental faculty meetings at strategic times of the academic year and the creation of an informational brochure.

After working to gather statistics from the online evaluation tool, it was apparent that the categories in the rating scales were not precise enough, making it difficult to generate adequate granularity among responses. Improving the survey tool to gather more specific student feedback will help to further improve synchronous library instruction in the future.

CONCLUSION

To meet the changing needs of library users wherever they are located, MSU librarians have added another element to the multiple methods in place to reach and instruct students and faculty. With 10% to 30% of MSU students in an online class at any given time, it is clear that in order to provide equitable library services, librarians must be embedded in this virtual environment. By meeting students and faculty online, Montana State University librarians are not only fulfilling users' information needs, they are also maintain-

ing their relevance to those users. Though some technical difficulties were encountered during the web conferencing project, feedback from participants has been overwhelmingly positive. The implementation of synchronous instruction provides students a high-touch, personal library experience and reinforces the library's role in their academic success.

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KEY TERMS AND DEFINITIONS

Academic Libraries: Libraries located at post-secondary institutions, including colleges and universities.

Embedded Librarians: Librarians with an instructional role that have established collaborative working relationships with instructors and trainers and thus are integrated into programs, training efforts and courses. In the online realm, an embedded librarian is often an integral component of online courses and programs conducted via a learning management system. Embedded librarians are available to course and program participants for library instruction and research

consultation throughout the duration of the course or program.

Information Literacy: The ability to understand the extent and scope of an information need, as well as the ability to locate, evaluate and apply or use the information once located.

Library Instruction: Also referred to as bibliographic instruction, library instruction is the teaching of library users by trained library personnel, usually degreed librarians, on the services and resources available through the library, including print and online subscription and proprietary information resources, as well as freely available information resources. In academic librarianship, library instruction is often highly tailored to a research assignment within a specific discipline and is a collaborative effort between librarian and course instructor.

Online Library Instruction: Library instruction conducted either synchronously or asynchronously via the web. Includes web conferencing and web tutorials.

Real-Time Library Instruction: Refers to library instruction conducted typically by web conferencing between librarian and library users, regardless of where they are located. Also referred to as synchronous library instruction.

Synchronous Library Instruction: Refers to library instruction conducted typically by web conferencing between librarian and library users, regardless of where they are located. Also referred to as real-time library instruction.

Web Conferencing: A method of synchronous, real-time communication using freely available or proprietary web software. Professional purposes for web conferencing include meetings among interested individuals for teaching, learning and training on any variety of topics. Web conferencing allows collaboration and co-browsing of websites, documents and resources, regardless of where participants are located. A web camera is often employed in web conferencing in order that participants may view an instructor or meeting leader, and at times each other, depending on situation and purpose.