

Successful Approaches to Teaching Through Chat

Frances Devlin, Lea Currie, and John Stratton
University of Kansas, Lawrence, Kansas, USA

Abstract

Purpose – The purpose of this study is to determine whether librarians at the University of Kansas are providing instruction through chat in order to develop best practices for training purposes.

Design/methodology/approach – The authors analyzed a sample of chat transcripts using the *ACRL Information Literacy Competency Standards for Higher Education* to determine whether librarians were utilizing opportunities for instruction in the chat medium. Using this analysis, they selected the best examples of instructional techniques.

Findings – Students were open to receiving instruction through chat. Librarians who were most successful in providing assistance to students demonstrated persistency and approachability in their interactions.

Practical implications – The authors developed a list of top ten practices for instruction through chat which can be used for training purposes.

Originality/value – Librarians need to continue to develop instructional techniques to create more opportunities for teaching moments in chat. The authors would like to raise awareness of the impact of librarians' demeanor in the online environment.

Keywords Information literacy, Reference services, Virtual reference

Paper type Case study

Introduction

The University of Kansas Libraries implemented its chat reference service in 2003 to provide virtual research assistance to students, staff and faculty. Chat (i.e. synchronous online communication between librarian and student) and instant messaging have developed into popular modes of communication used by students and offering chat was a logical extension of the libraries' reference services. The transcripts generated as a result of the chat service have provided a wealth of documentation worth further

examination. The authors of this paper were particularly interested in finding out if librarians were successful in providing instruction to students in their virtual interactions. Based on the *Association of College & Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education* (<http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.cfm>), that provide a framework for assessing the information literate individual. Evaluation of the chat transcripts has provided insights into whether the University of Kansas librarians were teaching students to determine what information they needed, how to access it, use it ethically, and to evaluate the information critically through online interactions.

Libraries have long had an educational role with their students and teaching at the reference desk has become a widely-accepted practice. Academic librarians play a role in promoting the development of information literacy skills and look for opportunities to teach research skills to students. With chat firmly established in the “suite” of reference services offered, it has prompted librarians to think about how to incorporate their teaching into the online environment. When helping individuals through chat, it is easy to just provide the answer, do the search for them or push the appropriate web pages their way. For librarians accustomed to performing reference transactions face-to-face, chat can represent a challenge for their teaching style. Often their techniques need to be adapted for conducting an effective reference interview online. However, chat reference presents a unique opportunity to reach out to students at a time when they may be more receptive to learning.

Literature Review

The authors reviewed the literature concerning the quality of teaching in the chat environment and how evaluation and analysis of quality was conducted at other universities. Smyth (2003) used three models for analyzing chat transcripts, including Sear's Classification of Reference Question Types, the *ACRL Information Literacy Competency Standards for Higher Education* (hereafter referred to as the *ACRL Standards*), and the Eisenberg-Berkowitz Information Problem-Solving Model. The purpose of the study was to determine what questions were being asked and how much instruction occurred within the virtual reference setting (p. 27). None of these models completely described the practice of chat services, but each could be used to shed some light on how students perceived and used virtual reference services (p. 28). As with an earlier study conducted by Devlin, Stratton, and Currie (2007) using the *ACRL Standards*, Smyth noted that there was overwhelming evidence that Standards One and Two were being met, but the other three Standards were seldom in evidence (pp. 28-29).

Ellis (2004) used the *ACRL Standards* to incorporate teaching through digital reference. She observed that the existence of digital reference has prompted librarians to determine how to incorporate teaching into the online reference environment and deal effectively with problems that can occur with chat interactions such as the lack of visual clues, slow typing, out-of-sync exchanges, dropped calls, curtness or abruptness of interactions, and multiple calls (pp. 105-106).

Moyo (2006) assessed the incorporation of instruction into virtual reference services and explored whether the rate and nature of instruction provided during virtual reference was different than that provided during face-to-face reference. With the proliferation of electronic collections and other Web resources, there is a need for greater instructional support. In this study, Moyo determined that an “instructive reference” session took place when one or more of the following elements were in evidence:

- guiding students in navigating library web resources
- recommending specific databases to be used and explaining the reason for the recommendation
- helping users formulate a search strategy
- explaining the features of a particular database and showing how to use them
- providing search tips and tricks
- helping users understand the components of bibliographic citations or records
- helping users understand the search results (p. 220)

Radford (2006) applied communication theory to a qualitative investigation of interpersonal communication using chat. In this study, the investigator found that skills important in face-to-face interactions were also present in virtual reference. These techniques included rapport building, compensation for lack of non-verbal cues, strategies for relationship development, deference and respect, face-saving tactics, and greeting and closing rituals (p. 1046). Communicating effectively with remote users is one of the biggest challenges to providing reference services and Ronan (2003) noted that librarians needed to translate interpersonal skills used at the physical reference desk into

the virtual environment. She also made some general observations about the characteristics of communication and behavior in text-based chat and instant messaging, including the lack of nonverbal cues, lack of voice intonation or accents, use of emoticons and descriptions of gestures, language more like spoken than written, fast pace, importance of typing skills, writing and spelling skills highlighted, active involvement of users, fluid identity, norms and conventions for conduct, and reduced inhibitions (p. 43). Based on the *RUSA Guidelines for Behavioral Performance of Reference and Information Services Professionals*, Ronan introduced chat communication norms and provided suggestions for effective online reference interviewing (pp. 44-46).

Hyde and Tucker-Raymond (2006) developed a checklist of measures comprised of nineteen separate items in order to compare the performance of librarians staffing chat reference with guidelines developed to govern the service (pp.10-11). Many points on the checklist reflected positive instructional techniques including effective usage of the reference interview, practicing effective interpersonal communication, establishing rapport, and providing instructional guidance. Ryan, Daugherty, and Maudlin (2006) performed a review of the virtual reference transcripts generated by Louisiana State University librarians to assess the quality of the service provided to students. Of the 280 transcripts analyzed, 23% were related to instruction. Positive customer service behaviors were highlighted as important to assessing quality transactions.

In an effort to analyze an IM service to determine what extent instruction was offered, and whether students wanted or expected it, Desai and Graves (2006) surveyed students over a seven week period to discover if they could or did learn using a virtual service. Results revealed that students welcomed instruction, although the way the question was phrased affected the likelihood of instruction taking place. Ciconne and Van Scoy (2003) described their experience in dealing with “four areas common to developing virtual reference services” at North Carolina State University, including “quality assessment and expanding and improving the service” (p. 96). In analyzing their service, they discovered that 27% of their virtual reference questions were instruction questions.

Luo (2007) extracted chat competencies from the literature and librarians’ interviews to generate a list of competencies that could be used for the training and educational purposes. Using chat transcripts and surveys from the chat reference librarians at the University of Minnesota-Twin Cities Libraries, Brobowsky, Beck, and Grant (2005) described the relationship and tension between instruction and reference in the chat interview. They advocated for a training program that included the development of procedures and best practices and extensive chat software training (pp. 179-180). Other suggestions included holding regular discussion groups and meetings for chat librarians, development of a troubleshooting guide with tips and tricks, and a regular critical review of chat transcripts.

University of Kansas Study (2007) by Devlin, Stratton and Currie

In an earlier study conducted at the University of Kansas (KU) Libraries in 2007, the authors used the *ACRL Standards* as criteria for evaluation, formulating questions for the performance indicators under each Standard. Approximately 2,300 chat transcripts were reviewed from a period of two years to determine whether librarians were taking advantage of “teaching moments” that occurred in the chat medium and if they were successful in using these online interactions to instruct students.

After close examination of the data, the authors concluded that the chat reference service at the University of Kansas was very successful in meeting Standards One and Two. Librarians were effective in using the reference interview to find out what types of information the students needed and in helping them to devise a search strategy. The breakdown in librarians’ ability to communicate the *ACRL Standards* appeared to begin with Standard Three. For example, many opportunities to instruct students on how to evaluate information sources were missed during the chat interactions. Librarians often asked students if they were finding the information they needed, but were not informing them about the quality of the information or helping them question the information’s validity. When evaluating Standard Four, librarians sometimes missed opportunities to find out what the students were trying to accomplish with the information they were helping them find. Similarly librarians were rarely able to meet Standard Five in teaching students to use information ethically and to cite sources. The authors recognized that providing instruction in the online environment could be time-consuming. Although students tended to remain online as long as the librarian was instructing them, librarians were not always persistent at keeping students engaged.

Methodology

For this paper, the authors decided to look more closely at transcripts that had been identified as “the best” successful chat interactions between librarians and students from the earlier review. The authors were interested in learning more about librarians’ approaches or techniques that were successful in engaging students and were conducive in leading to instructional moments. Approximately fifty transcripts were selected for review from the original 2,300 transcripts. For this analysis, the authors read the transcripts together, so that discussion could occur and consensus could be reached on which standards were being revealed. To assist in the review, questions were developed using the *ACRL Standards* as a framework for evaluation:

Standard One

The information literate student determines the nature and extent of the information needed.

Does the librarian help students:

- Define and articulate the need for information?
 - Identify a variety of sources?
 - Consider costs and benefits of the needed information?
 - Re-evaluate the nature and extent of the information need?

Standard Two

The information literate student accesses needed information effectively and efficiently.

Does the librarian help students:

- Select the most appropriate sources?
 - Construct effective search strategies?
 - Retrieve information using a variety of methods?
 - Refine the search strategy?
 - Extract records and manage the information?

Standard Three

The information literate student summarizes the main ideas to be extracted from the information gathered.

Does the librarian give students the opportunity to or help them:

- Summarize the main ideas to be extracted from the information?
 - Evaluate information?
 - Synthesize the main ideas?
 - Compare new knowledge to prior knowledge?
 - Determine impact on value system?
 - Validate understanding?
 - Revise initial query if needed?

Standard Four

The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Is the librarian effective in helping students:

- Apply new and prior information to the planning and creation of a product?
 - Revise the development process?
 - Communicate the product effectively to others?

Standard Five

The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Does the librarian help students:

- Understand many of the ethical, legal, and socio-economic issues surrounding information?
 - Follow laws, regulations, institutional policies, and etiquette related to the access and use of information?
 - Acknowledge the use of sources?

Observations and Analysis

During the course of the analysis, the authors discovered several barriers that impeded chat interactions from reaching a successful conclusion or, in some instances, interfered with the exchange while it was in progress. Many of these same barriers have been recognized and noted by other authors and are not unique to the service environment established at the University of Kansas. Nonetheless, the authors believe it is instructive

to note some of these barriers, especially those that stand in juxtaposition to the other behaviors that served to promote successful chat exchanges between students and librarians.

For example, in terms of communication barriers the authors noted the online environment did not provide either students or librarians with “visual” cues that would be present in face-to-face exchanges of information. This meant that librarians had to work especially hard to establish good communication with students at the beginning of chat sessions in order to compensate for the lack of visual cues. Similarly, in another area of communication, librarians who failed to provide significant feedback to the student often failed, perhaps unintentionally, to establish effective online communication parameters. This was sometimes exacerbated by an inability to translate reference interview skills to the online environment.

In addition, the use of chat was not always the appropriate means to obtain the information needed. Some students were looking for quick answers or, conversely, seeking to have complex research questions answered in an online environment when such questions were better suited for personal consultations with subject specialists. Other students were simply not willing to wait until the librarian was available and abandoned the call.

At times, technical issues interfered with successful online conversations and messages were delivered “out-of-sync”. The fast pace of the interaction tended to result in

disjointed conversations that impeded the successful establishment of rapport between librarian and student. In addition, difficulties with the co-browse feature of the chat software being used disrupted several sessions, both successful and unsuccessful ones.

Notwithstanding these barriers, in the analysis of transcripts the authors discerned repeated patterns of behavior displayed among librarians who were very successful in engaging students in the chat environment. The authors chose the transcripts where these behaviors were in evidence, identifying them as representative examples of effective instructional techniques or “best practices” of such techniques. It should come as no surprise that most of these techniques were strongly similar to behaviors modeled in successful person-to-person exchanges.

For instance, the authors discovered that the following practices, behaviors, or techniques, when consistently applied by librarians during the course of chat conversations yielded positive and instructive outcomes for the student utilizing the chat service:

- Engaging the student in performing another online task while checking for other information
- Effectively using the two browser option – talking the student through the database/catalog search on a step-by-step basis
- Having the student devise or converse about other possible keywords to search

- Defining terminology, explaining differences between types of sources (i.e., peer-reviewed, scholarly, magazines vs. newspapers vs. journals)
- Checking back with the student frequently
- Helping revise searches, further developing search strategies, and/or suggesting additional keywords or terms
- Making appropriate referrals
- Explaining or navigating through access-related issues (i.e., databases, interlibrary loan, and co-browsing)

In successful interactions, librarians also exhibited a conversational style best described as “approachable”, one that built rapport with the student, and used positive feedback and encouragement to further the online exchange of information. These librarians were observed to be remarkably persistent in pursuing answers, working through technical issues online, or determining that students were receiving the information they needed.

In an effort to more fully describe the successful instructional techniques uncovered during the analysis of the transcripts, the following section of the paper shall provide examples displayed by librarians in the transcripts that were selected using the *ACRL Standards* as a framework.

Under Standard One, the authors hoped to discern if librarians helped students define and articulate the need for information, identify a variety of sources, and/or re-evaluate the

nature and extent of the information desired. Similarly, Standard Two helped the authors discover if librarians helped students select the most appropriate sources, construct efficient search strategies and/or refine search strategies. Standard Three sought to reveal if librarians assisted students by giving them the opportunity to evaluate information, synthesize main ideas, revise initial inquiries and/or compare new knowledge to prior knowledge. Standard Four was framed by the authors in specific ways to discern whether librarians were effective in helping students apply new and prior information to the planning and creation of a product and/or whether or not the results were communicated effectively to others which was something very difficult for librarians to gauge. Similarly, the authors looked for examples to support the application of Standard Five - where the information literate student understands the ethical, legal, social and economic issues about using information - was in evidence.

For example, consider this exchange between a student and a librarian that successfully portrays Standards One, Two and Three:

S Does the library have any Journals within X Library? And if so how do I find them?

L Ok, so you want to know about finding journals within X Library? Is there a specific journal you are looking for, articles on a specific topic or something else?

S Yes, the American Journal of Psychiatry

L [Co-browsing introduced—web page displayed]

S Still loading.....

L OK, well let's hang in there a minute so we can try this. The catalog is the place you would go to see if X Library has a particular book, magazine, journal etc. So it will tell us if and where you can get the Am Journal of Psychiatry. Are you looking for a specific issue or date? Or do you just need to browse an issue?

S I know I want an article by Spinelli

L OK, so we actually need to look at something else first so that we would know which issue to look at. The journal won't be able to tell us which issue has an article authored by someone named Spinelli. OK, let's figure that out first.

S Ok sounds good. Thank you for all of this.

L [Librarian goes to database page and asks student to select appropriate subject heading and asks]: "What heading that you see here seems like the best match?"

S Psychology [student selects link]

L [Librarian suggests Psychinfo and asks if student is seeing the screen – and asks if student has article title, which they do – librarian finds citation with link to article. Student follows link and gets the article]

L OK, so do we have success?

S Yes we do. Thank you so much

Note how the librarian applies successfully several good techniques to obtain the information, including engaging the student in performing another online task while checking for other information, effectively using the two browser option, and having the student devise or converse about other possible keywords to search.

Standards One and Two are illustrated in the following exchange, in which a student posed the question “I’m writing a paper about our culture’s obsession with reality in television, art and film. Could you help me find some articles or books?”

L Hi, xxxxx, hang on a second and let me read your question.

S Does it make sense?

L Oh, yeah—it does—so do you want to find more scholarly, or more news-oriented articles (like Time, Newsweek, etc.)? Or both?

S I guess both but maybe more essays than news stuff.

L [Librarian suggests multidisciplinary databases to search and asks] “Are you familiar with either one of these?”

S I’ve looked a little in both but couldn’t find much. I had trouble coming up with keywords.

L OK, that I can help you with. What kind of keywords were you trying, what results were you getting, and what were you hoping to get?

S Reality television—reviews...reality and television or film...again reviews.

L Let’s try something—can you open up a new browser window and go into Database X on your pc and we can try a search and talk through what is found.

L Go ahead and plug in this search and let me know when you get the results screen and we can talk about what comes up.

The search continues with some positive results displayed. The librarian then poses the question:

L Notice that many of these have the full-text available right there.....Is this stuff looking promising?

S Oh, yeah, that sounds really good!

Again, several good instructional techniques were utilized by the librarian to achieve the desired end. These included having the student devise or converse about other possible keywords to search, checking back with student, and helping revise/refine the search.

In another transcript, the authors selected the following exchange as providing examples of Standards One, Two, Three and Five. Note how the librarian used several effective techniques and, in particular, established a very good rapport with the student at the beginning of the online conversation.

L Hello! What is your question tonight?

S Hi I am doing a film review/analysis for a film class....And my question is...We are supposed to use database X to find relative material to use in our reviews....How do I use X and is there any comparable resources that would be helpful.

L Interesting question. What film are you doing?.How many sources/reviews do you need.

S Good Night and Good Luck.

L Great film! Here are some quick suggestions...For recent film reviews, I would use the database called X. That will give you citations and in many instances the full text of reviews from a variety of magazines....Have you used this database before, or X?

S No, I am new to this.

L OK, have you ever used any electronic databases at other libraries to find articles? I can give you a quick start—then for more in-depth assistance, you may want to visit with the librarians at the X Library reference desk.

S Yes...I always get frustrated because I never can find “the meat” of the articles...I only find search results and snippets of what I want...not full articles.

L ...Most electronic databases will give you some full text, but unless they are advertised as complete full text, it will be a mix of full text and citations. You

can then see if the library owns the magazine or journal. [Librarian opens co-browse]

Note how quickly the librarian established a good conversational style with the student, suggested several resources to use, and explained some of the techniques used to navigate the databases suggested. The session continues with the librarian leading the student to a list of databases and selecting one in particular to explore.

L Ok, now change your search to Basic Search and type in: good night and good luck...you should find quite a few references—look for the ones that are specifically film reviews.

S Ok, neat...How would I cite an article from here.

L Depends. I would very much recommend that you ask your instructor for help in citations.

In the exchange above, the student requested information about how to handle a citation. This revealed an awareness of the legal issues surrounding the use of information and is illustrative of Standard Five. While the librarian did not fully engage the student with this issue, the student was referred to the instructor for greater guidance. The librarian probably did not know the style manual the student was using, but could have pursued

this line of the conversation in more detail. The session concludes with an exchange about other topics to search.

L Hope that makes sense...!

S Ok, that sounds good.

L Great! That's a start and you might want to follow up with the reference librarians at X Library for more in-depth help.

L I guess I could say "good night and good luck..." (sorry!)

S Haha, very clever....thanks.

L Is there anything I can help you with tonight? (could not resist the previous one!).

S Nope, that's it. Thanks a lot!

The following excerpt is from the end of a chat interaction where the librarian had helped the student to find several sources and was determined by the authors as representative of Standard Five:

S There is a way to go and get sources in APA format, right? I just don't know how to do that.

L I have an APA sheet and I can email it to you. You could use RefWorks but because you only have 5 sources it wouldn't take much time for you to do it on your own. Do you want me to send you the sheet I have on how to do APA?

S Yeah, that would be helpful, thanks.

Standards One through Three all attempt to describe situations in which students recognize the need for information and attempt various ways to find information and/or to refine strategies to discover it. Standards Four and Five relate more to the way students use information. It is especially difficult to discern if Standard Four is being applied, since the librarian does not often see the finished product.

Conclusion

In conclusion, the authors found that in the sample of chat sessions generated at the University of Kansas Libraries and analyzed for this paper, most students were receptive to receiving instruction through chat. Those students who contacted the service for assistance were usually very forthcoming in stating their information need at the beginning of the session and for the most part were generally willing to engage in online conversations to meet that need. In the best instances, many of which are included above, librarians providing assistance via chat utilized instructional 'best practices' that often

made use of proven reference interview techniques to elicit more information from students including the practice of asking clarifying questions, checking back often with the student, and involving students in the process of developing search strategies.

In the authors' analysis, it was further revealed that the librarians most successful in providing assistance to students were those who also demonstrated "persistence" in their attempts to provide instruction. This trait and the establishment of conversational rapport from the beginning of the conversation were primarily the ultimate 'best practices' discovered in the analysis of chat sessions.

In addition to using chat transcripts to assess the quality of the service, the authors also discovered the analysis of chat sessions provided information for training librarians and other staff who participated in the service. For example, the authors' construction of a framework of instructional best practices yielded practical information useful for training chat operators to be more successful in interacting with students in this particular medium. Following is a list of "top ten" best practices developed by the authors for instruction through chat:

1. Discover what the student already knows – get him to describe what he has already done to start the research process.
2. Build search strategies with the student – let the student initiate suggestions and come up with ideas and then help to build a search strategy.
3. Aim for student independence – whenever possible, guide the student through the process. Don't do it for them.

4. Be as descriptive as possible – describe each process step-by-step.
5. Ask questions during each step of the conversation.
6. Ask the student to describe what he is finding and how it will help with his research.
7. Check back frequently to make sure the student understands and is following along. Make the student as comfortable as possible – use humor and face-saving techniques.
8. Build confidence in the student– use praise often.
9. Give the student the opportunity to critically evaluate the information he is finding –is it scholarly, peer-reviewed or popular culture?
10. Don't leave the student hanging with a referral – get his contact information and help him make the connection to a subject specialist.

The length of the chat session did not seem to matter to most students, as long as they felt engaged with the process and were receiving in good faith the help they needed from the librarian. In the final analysis, the authors found that chat was almost always conducive to instruction - librarians simply must always be open in looking for the opportunities to provide it.

References

- Association of College and Research Libraries (ACRL) (2000), *Information Literacy Competency Standards for Higher Education*, ACRL, available at: www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.htm (accessed 7 December 2007).
- Brobrowsky, T., Beck, L., and Grant, M. (2005), "The chat reference interview: practicalities and advice", *The Reference Librarian*, Vol. 43 No. 89/90, pp. 179-191.
- Ciccone, K., and VanScoy, A. (2003), "Managing an established virtual reference service", *Internet Reference Services Quarterly*, Vol. 8 No. 1/2, pp. 95-105.
- Desai, C.M., and Graves, S.J. (2006), "Instruction via instant messaging reference: what's happening?", *The Electronic Library*, Vol. 24 No. 2, pp. 174-189.
- Devlin, F., Stratton, J., and Currie, L. (2007), "Not just Q & A: teaching through digital reference", *Proceedings of the Brick and Click Libraries Academic Library Symposium*, pp. 124-129.
- Ellis, L.A. (2004), "Approaches to teaching through digital reference", *Reference Services Review*, Vol. 32 No. 2, pp.103-119.
- Hyde, L., and Tucker-Raymond, C. (2006), "Benchmarking librarian performance in chat reference", *The Reference Librarian*, Vol. 46 No. 95/96, pp. 5-19.
- Luo, L. (2007), "Chat reference competencies: identification from a literature review and librarian interviews", *Reference Services Review*, Vol. 35 No. 2, pp. 195-209.
- Moyo, L. (2006), "Virtual reference services and instruction: an assessment", *The Reference Librarian*, Vol. 46 No. 95/96, pp. 213-230.
- Radford, M. (2006), "Encountering virtual users: a qualitative investigation of interpersonal communication in chat reference", *Journal of the American Society for Information Science and Technology*, Vol. 57 No. 8, pp. 1046-1059.
- Ronan, J. (2003), "The reference interview online", *Reference and User Services Quarterly*, Vol. 43 No. 1, pp. 43-47.
- Ryan, J., Daugherty, A., and Mauldin, E. (2006), "Exploring the LSU libraries' virtual reference transcripts: an analysis", *Electronic Journal of Academic and Special Librarianship*, Vol. 7 No. 3, available at: http://southernlibrarianship.icaap.org/content/v07n03/ryan_j01.htm.
- Smyth, J. (2003), "Virtual reference transcript analysis: a few models.", *Searcher*, Vol. 11 No. 3, pp. 26-30.

Further Reading

- Arnold, J., and Kaske, N. (2005), "Evaluating the quality of a chat service", *Portal: Libraries and the Academy*, Vol. 5 No. 2, pp. 177-193.
- Ellis, L.E., and Francoeur, S. (2001), "Applying information competency to digital reference", 67th IFLA Council and General Conference, Conference Programme and Proceedings, available at: www.ifla.org/IV/ifla67/papers/057-98e.pdf. (accessed 7 December 2007).
- Graves, S.J., and Desai C.M. (2006), "Instruction via chat reference: does co-browse help?", *Reference Services Review*, Vol. 34 No. 3, pp. 340-357.
- Johnston, P.E. (2003), "Digital reference as an instructional tool: just in time and just enough", *Searcher*, Vol. 11 No. 3, pp. 31-33.
- Kawakami, A. and Swartz, P.(2003), "Digital reference: training and assessment for service improvement", *Reference Services Review*, Vol. 31 No. 3, pp. 227-236.
- Kern, M.K. (2006), "Looking at the bigger picture: an integrated approach to evaluation of chat reference services", *The Reference Librarian*, Vol. 46 No. 95/96, pp. 99-112.
- Kibbee, J., Ward, D. and Ma, W. (2002), "Virtual reference, real data: results of a pilot study", *Reference Services Review*, Vol. 30 No.1, pp. 25-36.
- Pomerantz, J., Lui, L., and McClure, C.R. (2006), "Peer review of chat reference transcripts: approaches and strategies", *Library & Information Science Research*, Vol. 28 No.1, pp. 24-48.
- RUSA. "Guidelines for Behavioral Performance of Reference and Information Service Providers." American Library Association. 2006.
<www.ala.org/rusa/stnd_behavior.html> (accessed 22 May, 2007)
- Zhuo, F., Love, M., Norwood, S., and Massia, K. (2006), "Applying RUSA Guidelines and the Analysis of Chat Reference Transcripts" *College and Undergraduate Libraries*, Vol. 13 No.1, pp. 75-88.

About the authors

Frances Devlin is the Coordinator of Reference Services and Librarian for French and Italian Literature at the University of Kansas Libraries. She received her MLS from the University of Western Ontario in London, Ontario in 1982. She was responsible for implementing the Libraries' chat service in 2003 and continues to have administrative responsibility for the service. Research interests include development and assessment of emerging technologies such as chat and instant messaging services to enhance traditional reference services in academic libraries.

Lea Currie is Interim Coordinator of Collection Development and Education Librarian at the University of Kansas Libraries. She received her MLIS from the University of Texas at Austin in 1999. Research interests include instruction and approaches to teaching information literacy in academic libraries.

John Stratton is Librarian for Business and Public Administration at the University of Kansas Libraries. He received his MSLIS from the University of Illinois in 1984. His research interests include design and delivery of reference services and assessment of library services. He has also written on topics of local history and biography.