Library Scholarship   University Libraries

2023

Crafting the Future of Chat Reference: Assessing for Quality in Cooperative Chat Reference

Elise Ferer
Binghamton University--SUNY, eferer@binghamton.edu

Jennifer Lege Matsuura
University of Pennsylvania, jlege@upenn.edu

Crafting the Future of Chat Reference: Assessing for Quality in Cooperative Chat

Elise Ferer, Instruction and Outreach Librarian, Binghamton University Libraries, eferer@binghamton.edu
Jen Lege Matsuura, Medical Research Librarian, University of Pennsylvania Libraries, jlege@upenn.edu

Reference

Online reference allows libraries to join cooperatives where non-local librarians provide chat reference when local librarians are not available, far extending the hours assistance is available to patrons. In the summer of 2021, many courses were still entirely online, and students and faculty were spread across various time zones. Cooperative chat (offered when local library staff were not available) made research assistance more accessible to a large online community. Additionally, extended hours increased availability to those who worked outside of the library staff's regular working hours from approximately 8am to 5pm.

As the future brings more online and cross institutional collaboration, we need to know that librarians from other institutions are able to adequately assist local patrons. In order to understand how a cooperative chat service could assist local patrons, librarians at Drexel University Libraries in Philadelphia, Pennsylvania developed a project to pilot a cooperative chat service for one term and assess the chat transcripts from librarians in the cooperative. What follows is our development of the project, results, and lessons learned.

Literature review

Through a review of the literature, we learned the different approaches other librarians had taken to assessing reference services. The initial literature review began as a means to find a way to assess chat transcripts, with a focus on the methods others have used. What follows is a very brief overview of the ways in which librarian behavior in reference has been assessed in the past with an emphasis on assessing the quality of reference service provided by librarians and assessing chat transcripts. From the review we were able to identify that we could draft a rubric and use it to assess anonymized transcripts. Our initial rubric built on elements from other assessment examples in the literature, both in the structure and content.

Librarians have been evaluating reference services as long as they have been providing reference assistance to their patrons. When evaluating reference, librarians examine the accuracy of the answers

they provide[1], the satisfaction of their patrons[2], the types of questions received[3], the types of instruction that happens in reference[4], and the accuracy of answers to subject specific questions[5]. Other studies have taken a more holistic view of chat reference by looking at several of these factors above at once in addition to how a service is staffed[6].

Libraries have further chosen to review reference services through the guidelines for and behavior of librarians providing reference - this is sometimes referred to as the quality of the reference service. Often the Reference and User Services Association's (RUSA) "Guidelines for Behavioral Performance of Reference and Information Service Providers"[7] were used to describe quality or, if available, librarians used their own local service or quality guidelines. Librarians chose to either review all of the guidelines from RUSA or focus on the guidelines that were important to their users. Using RUSA's "Behavioral Guidelines" or other measures of quality, librarians have been reviewing chat

[1] Julie Arnold and Neal K Kaske, "Evaluating the Quality of a Chat Service," *Portal* 5, no. 2 (2005): 177–193., Bill Bailey, "The '55 Percent Rule' Revisited," *The Journal of Academic Librarianship* 13, no. 5 (1987): 280–282., Kenneth D. Crews, "The Accuracy of Reference Service: Variables for Research and Implementation," *Library and Information Science Research* 10, no. 3 (1988): 331-55., Peter Hernon and Charles R. McClure, "Unobtrusive Reference Testing: The 55 Percent Rule," *Library Journal* 111, no. 7 (1986): 37-41., Loriene Roy, "Reference Accuracy," *The Reference Librarian* 23, no. 49-50 (1995): 217-227.

[2] Kathryn Barrett and Sabina Pagotto, "Local Users, Consortial Providers: Seeking Points of Dissatisfaction with a Collaborative Virtual Reference Service," *Evidence Based Library and Information Practice* 14, no. 4 (2019): 2–20., Joan C. Durrance, "Reference Success: Does the 55 Percent Rule Tell the Whole Story?," *Library Journal* 114, no. 7 (1989): 31–36., J. B. Hill, Cherie Madarash-Hill, and Alison Allred, "Outsourcing Digital Reference: The User Perspective," *The Reference Librarian* 47, no. 2 (2007): 57–74.

[3] Robin Brown, "Lifting the Veil: Analyzing Collaborative Virtual Reference Transcripts to Demonstrate Value and Make Recommendations for Practice," *Reference and User Services Quarterly* 57, no. 1 (2017): 42–47., Loree Hyde and Caleb Tucker Raymond, "Benchmarking Librarian Performance in Chat Reference," *The Reference Librarian* 46, no. 95-96 (2006): 5–19.

[4] Kathryn Barrett, Judith Logan, Sabina Pagotto, and Amy Greenberg, "Teaching and User Satisfaction in an Academic Chat Reference Consortium," *Communications in Information Literacy* 14, no. 2 (2020): 181–204., Sandy Hervieux and Nikki Tummon, "Let's Chat: The Art of Virtual Reference Instruction," *Reference Services Review* 46, no. 4 (2018): 529–542., Julie Hunter, Samantha Kannegiser, Jessica Kiebler, and Dina Meky, "Chat Reference: Evaluating Customer Service and IL Instruction," *Reference Services Review* 47, no. 2 (2019): 134–150.

[5] David Ward, "Measuring the Completeness of Reference Transactions in Online Chats: Results of an Unobtrusive Study," *Reference & User Services Quarterly* (2004): 46-56.

[6] Kate Fuller and Nancy H. Dryden, "Chat Reference Analysis to Determine Accuracy and Staffing Needs at One Academic Library," *Internet Reference Services Quarterly* 20, no. 3-4 (2015): 163–181., Alison Steinberg Gurganus, "Virtual Reference in a Community College Library: Patron Use of Instant Messaging and Log-in Chat Services". PhD Diss., (Pepperdine University, 2015)., Nahyun Kwon, "Public Library Patrons' Use of Collaborative Chat Reference Service: The Effectiveness of Question Answering by Question Type," *Library & Information Science Research* 29, no. 1 (2007): 70–91., Sarah Maximiek, Erin Rushton, and Elizabeth Brown, "Coding into the Great Unknown: Analyzing Instant Messaging Session Transcripts to Identify User Behaviors and Measure Quality of Service," *College & Research Libraries* 71, no. 4 (2010): 361–373., Michael Mungin, "Stats Don't Tell the Whole Story: Using Qualitative Data Analysis of Chat Reference Transcripts to Assess and Improve Services," *Journal of Library & Information Services in Distance Learning* 11, no. 1-2 (2017): 25-36., Marie L. Radford and Lynn Silipigni Connaway, "Not Dead Yet! A Longitudinal Study of Query Type and Ready Reference Accuracy in Live Chat and IM Reference," *Library & information science research* 35, no. 1 (2013): 2-13., Marilyn Domas White, Eileen G. Abels, and Neal Kaske, "Evaluation of Chat Reference Service Quality," *D-Lib Magazine* 9, no. 2 (2003): 1-13.

[7] Reference and User Service Services Association, "Guidelines for Behavioral Performance of Reference and Information Service Providers," accessed November 7, 2022, https://www.ala.org/rusa/resources/guidelines/guidelinesbehavioral.

transcripts from their own reference services[8], chat reference that includes librarians from other libraries across the state, country, or world[9]. Librarians have compared the quality seen in the service local librarians provided on chat versus those provided by librarians in a consortia[10] or have assessed a random sample from a variety of libraries and consortia that provide chat reference[11].

Librarians also devised their own standards for virtual and/or chat reference[12] and RUSA has their own Guidelines for Implementing and Maintaining Virtual Reference Services mentioned above. For further information on research into chat reference consult Matteson et al.'s systematic review of the research on chat reference[13]. From this review we were able to begin to draft our own rubric and consider how we would use it to assess chat transcripts.

Environment/rationale

Drexel University is a private, R1 class University headquartered in urban Philadelphia, Pennsylvania with an industry-focused cooperative education (co-op) program. Through the co-op program most undergraduates complete at least one six-month work experience as part of their education along with a course that prepares them to both seek and complete their co-op placement.

---

[8] Erin Dorris Cassidy, Angela Colmenares, and Michelle Martinez, "So Text Me—Maybe: A Rubric Assessment of Librarian Behavior in SMS Reference Services," *Reference and User Services Quarterly* 53, no. 4 (2014): 300–312., Mariana Lapidus, Irena Bond, Erin Wentz, Samuel Bishop King, and Susan S. Mahnken, "Measuring the Quality of Reference Services Provided by Paraprofessionals at an Academic Library," *The Journal of Academic Librarianship* 46, no. 5 (2020): 1-7., Firouzeh F. Logan and Krystal Lewis, "Quality Control: A Necessary Good for Improving Service," *The Reference Librarian* 52, no. 3 (2011): 218–230., Maximiek et al., "Coding into the Great Unknown," 361-373., Great Valentine and Brian D. Moss (2017, April). *Assessing Reference Service Quality: A Chat Transcript Analysis* [Contributed paper]. Association of College and Research Libraries Conference 2017, At the Helm: Leading Transformation, Baltimore, Md. https://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpreconfs/2017/AssessingReferenceServiceQuality.pdf, Fu Zhuo, Mark Love, Scott Norwood, and Karla Massia, "Applying RUSA Guidelines in the Analysis of Chat Reference Transcripts," *College & Undergraduate Libraries* 13, no. 1 (2006): 75-88.

[9] Hyde & Raymond, "Benchmarking Librarian Performance," 5-19., Marie L. Radford, Lynn Silipigni Connaway, Patrick A. Confer, Susanna Sabolcsi-Boros, and Hannah Kwon, "Are We Getting Warmer?" Query Clarification in Live Chat Virtual Reference," *Reference & User Services Quarterly* (2011): 259-279.

[10] Deborah L. Meert and Lisa M Given, "Measuring Quality in Chat Reference Consortia : A Comparative Analysis of Responses to Users' Queries.," *College & Research Libraries* 70, no. 1 (2009): 71–84., Jeffrey Pomerantz, Lili Luo, and Charles R. McClure, "Peer Review of Chat Reference Transcripts: Approaches and Strategies," *Library & Information Science Research* 28, no. 1 (2006): 24–48.

[11] Jana Ronan, Patrick Reakes, and Marilyn Ochoa, "Application of Reference Guidelines in Chat Reference Interactions: A Study of Online Reference Skills," *College & Undergraduate Libraries* 13, no. 4 (2007): 3-30.

[12] Abby Kasowitz, Blythe Bennett, and R. David Lankes, "Quality Standards for Digital Reference Consortia," *Reference and User Services Quarterly* 39, no. 4 (2000): 355–363., Howard R. Schwartz, and Barry Trott, "The Application of RUSA Standards to the Virtual Reference Interview," *Reference & User Services Quarterly* 54, no. 1 (2014): 8–11.

[13] Miriam L. Matteson, Jennifer Salamon, and Lindy Brewster, "A Systematic Review of Research on Live Chat Service," *Reference and User Services Quarterly* 51, no. 2 (2011): 172–190.

Drexel University Libraries serves over 23,000 students[14], 2,221 faculty[15] and 3,691 staff[16] worldwide using a two-tiered approach to chat reference. The initial contact is usually with a member of the Library Assistance team, members of whom cover circulation, reserves and interlibrary loan in addition to first tier reference. If they are unable to assist, the patron is referred to a member of the Liaisons team, consisting of seven members during the period of this study, who staff chat reference alongside the Library Assistance team. Liaison team members can also be reached directly via chat from within library guides or databases.

Other duties and responsibilities, as well as being under-resourced, prevented Liaisons team members from staffing chat outside of the hours of 10am to 5pm, Monday through Friday. In recent history, the libraries had hired graduate students to staff a reference desk for longer hours, but these positions disappeared during budget cuts and the decision was made to prioritize consultation and appointments with liaisons over drop-in reference hours. During the pandemic, the Library Assistance team was staffing chat reference for longer hours (typically from 9am to 6pm) while the buildings were closed. Because of chat reference we had evidence that research questions that the Library Assistance team was not equipped to answer often came in on Sundays and during evening hours. Therefore, an alternative solution was explored.

A Liaison team member had experience with Pennsylvania's (PA) statewide Chat with a Librarian (CWAL) service from another institution and suggested that service as back-up when Drexel Liaison team members were not available. CWAL is a chat service run jointly by PA's Office of Commonwealth Libraries and the Department of Education[17]. While chats would be answered by other academic librarians (first at the state level and then worldwide utilizing Springshare's 24/7 Global Cooperative when Pennsylvania librarians were not available), Drexel librarians were concerned that patrons would not receive the same level of service from outside librarians. Specific concerns included:

1. lack of knowledge regarding the Drexel co-op program, which leads to many questions being applied or practical in nature
2. lack of knowledge of Drexel's resources
3. inability to access resources within the Drexel paywall, due to password restrictions.

Based upon these concerns, librarians agreed to embark on a project to review chat transcripts in which librarians from the statewide and worldwide services answered questions. Drexel is on the quarter system, so librarians agreed to evaluate chat transcripts from CWAL during the Summer quarter, between June 21 and September 4, 2021 with the intention of using the evaluation to either improve or discontinue the service. The initial focus was to assess the chat transcripts for quality, and as the idea moved forward, the team focused on two questions:

● Is a 24/7 cooperative chat service able to meet a patron's need when local librarians are not available?

---

[14] "Rankings & Achievements," Drexel University, accessed October 19, 2022, https://drexel.edu/about/rankings-achievements.

[15] Office of Institutional Research, "2021-2022 Drexel University Factbook: Faculty," Drexel University, January 14, 2022, https://drexel.edu/~/media/Files/institutionalresearch/Factbook/2122Faculty.ashx?la=en.

[16] Office of Institutional Research, "2021-2022 Drexel University Factbook: Employees," Drexel University, January 14, 2022, https://drexel.edu/~/media/Files/institutionalresearch/Factbook/2122Employees.ashx?la=en.

[17] "College Student - Power Library," Power Library, accessed January 9, 2023, https://powerlibrary.org/chat/college/#.Y7wlqXbMJPY.

- Is a 24/7 cooperative chat service providing our patrons with a quality service when local librarians are not available?

Development of the Assessment Project

Once librarians knew that they wanted to assess the chat transcripts from the statewide and worldwide chat services and had focused the research questions associated with the assessment, they began to investigate how to assess the transcripts. Based on previous experiences and a literature review, the creation of a rubric was considered to be a good fit for the assessment needs based on the ability to rate aspects of the interactions on a scale from unacceptable to excellent. Unfortunately, a rubric that met the needs of the project was not identified within the literature review, so at that point librarians began to draft their own rubric.

One of the biggest questions that had to be addressed was how to define quality and what would signal a patron's need was met. The librarian managing reference had used RUSA's "Guidelines for Behavioral Performance of Reference and Information Service Providers"[18] as a means to define quality for local reference. RUSA Guidelines and other rubrics and means that libraries had used to measure reference quality were used as guides to draft an initial rubric. Members of the Liaison team reviewed the rubric and focused on the aspects of the reference interaction that they thought were the most important to our patrons. This included the quickness in which a chat was picked up and answered, the effectiveness of the referral to other library services, and the librarian identifying themselves as not local to the library. Regarding the RUSA Guidelines, the rubric measures the ability of the librarian to question and listen to the patron, how the librarian communicates and stays in contact via chat, the accuracy of the answer(s), and how the librarian ends the interaction with the patron. These are measured on a 5-point scale with 5 being excellent and 1 being unacceptable. See the appendix for the full rubric.

The revised rubric was tested using de-identified chat transcripts from the statewide service as well as from Drexel librarians. After the initial tests, minor edits were made to the rubric, however a tight timeline kept the group from doing further testing to develop consistent ratings among the liaison team. Several small changes were made during the assessment period, in order to account for transcripts in which a question was stated clearly and did not require clarification, an answer was not given, and/or a patron disappeared before a partial or full answer was given.

The liaison team began to assess chat transcripts at the beginning of the Summer quarter which began June 21, 2021. A library staff member, who was not rating transcripts, de-identified all transcripts by removing all names, emails, etc. They gave each transcript a number and maintained a separate spreadsheet that matched the given transcript number with the transcript number assigned by SpringShare. The librarian managing reference had access to the spreadsheet in the case that a transcript needed to be further investigated, but the Liaison team who rated transcripts did not have access to this spreadsheet. The Institutional Review Board determined that the assessment did not meet the definition of human subjects research because the transcripts were anonymized.Each transcript was also given a number so that at the end of the rating period, the scores of each librarian could be averaged into a final score for each transcript.

---

[18] Reference and User Service Services Association, "Guidelines for Behavioral Performance."

An online form in which librarians entered their transcripts ratings was created, and transcripts along with a link to the form was sent to librarians on the liaison team on a weekly basis. Librarians rated transcripts weekly during the summer quarter, roughly an 11-week time period. At the end of the summer quarter the librarian managing reference began to examine the data more closely to make decisions and recommendations regarding the statewide and worldwide chat services.

Results and Outcomes

At the conclusion of the assessment period, 122 transcripts were rated, with 120 of those transcripts rated by between two and five different librarians. Because of this, two transcripts that were only rated by one person were removed from the data set, and 120 transcripts with between two and five ratings each made up the analyzed data set. Because the ratings for most transcripts had some degree of disagreement, mean scores were calculated for each transcript. Those scores made up the final scores for each transcript, which resulted in the initial findings.

The initial findings suggested that consortial chat was working for patrons. The majority of transcripts received a rating of satisfactory or above in all areas. Of the qualities that transcripts were rated on, in 76% of transcripts consortial librarians identified that they were not Drexel librarians, and there was a total of 31 successful referrals, with only two chats that referred to a person or service that could not assist and 10 transcripts in which librarians identified that a referral was not made but should have been.

The review of transcripts for questioning/listening, communication/contact, accuracy, and follow up/closing (the ways in which librarians closed a reference query) was also positive. The number of transcripts with ratings for each category are in the table below. The highest ratings were in the questioning/listening category with an average of 4.45 and the lowest were in follow up/closing with an average of 3.89. Our data demonstrates that there are a majority of chats in which the needs of the user appear to be met by consortial librarians.

Insert Table 1 Here

Because we had many transcripts, we began to look for various trends in the data: Does a low rating in one area correspond with a low rating in other areas? Are the four attributes of quality (questioning/listening, communication/contact, accuracy, and follow up/closing) linked in some way? What does this tell us about the behavior of librarians as they participate in global chat reference? Finally, is there something that the discrepancy in ratings tell us?

The data was examined regarding the questions above using Tableau, a data visualization tool. In addition to creating visualizations of the means and medians of the transcript ratings, referral data, and ratings for each transcript, scatter plots were used to examine the correlations between the ratings of quality. From this, the highest correlation was between the ratings for communication/contact and accuracy, meaning that when a transcript scored highly in communication/contact, it was likely that it would also score high for accuracy. This was followed by the correlations between communication/contact and follow up and accuracy and follow up. While the correlation between communication and contact and accuracy had a large cluster of transcripts near the upper right of the graph (showing a correlation of highly rated transcripts), the correlations between communication/contact and follow up, and accuracy and follow up showed correlations between lower

rated transcripts as well. This demonstrates that when a librarian had large gaps of time between communicating with a patron it was likely to have a poor rating in follow up and similarly a poor rating in accuracy could correspond with a low rating in follow up.[19]

When reviewing disagreements in the quality ratings, the focus was placed on the discrepancies in the ratings for questioning/listening, accuracy, and follow up. These disagreements were defined as two or more ratings that were not sequential in the scale, meaning if a transcript was rated 3s and 4s for one aspect it was not defined as a disagreement, but if it was rated 3s, 4s, and 5s it was. Since any disagreements in communication/contact could be easily resolved by reviewing the timestamps in the transcripts, it was not reviewed. Not surprisingly the largest number of disagreements in ratings were in the accuracy category with 60 transcripts. This rating hinged on correctness, which can be a highly subjective term depending on the question asked. This was followed by 42 transcripts with disagreements in ratings for follow up and 13 transcripts with disagreements in ratings for questioning/listening. Five of these transcripts had disagreements in all three categories. Interestingly, two of these transcripts were evaluated in the first batch of transcripts, meaning that the disagreements may have been a result of issues in initial use or understanding of the rubric.

In reviewing the transcripts that had disagreements in ratings for questioning/listening, accuracy, and follow up, several themes appeared. Librarians did not ask enough questions to understand the question and/or misinterpreted the information that the patron gave them. In one case, this resulted in a librarian trying to lead a patron through a complex search strategy, while the patron was just beginning their search for information, and in another the librarian jumped into giving possible answers before defining the scope of the question. In both cases, the issues seemed to point to a lack of listening or asking precise questions to understand what a patron needed. In several of these transcripts it was also clear that accuracy was subjective, as the same answers that felt incorrect or incomplete to one rater were judged as complete and correct by another rater.

While no drastic changes were made to the service and it was decided to continue using consortial chat "after hours," some recommendations were made and put into place. One major difficulty patrons in chat experienced was finding full text of resources (mostly articles) through the library. To assist with this, more information on finding full text and assisting patrons with technology issues was added to the internal FAQs that consortial librarians could use when answering chat questions. This included where to send patrons when they had hardware issues, pointed to public FAQs for when a link was not working, or when users were having issues logging into library resources.

There were some changes or improvements that were recommended but could not be completed immediately. One of these was clarifying the difference between 24/7 consortial chat and chat with local librarians. It was identified that this would require some user experience testing, but the institution lacked the resources and expertise for this during the study, so it became a point to investigate in the future. The other recommendation regarded training of local librarians; librarians who rated transcripts described how the act of rating chat transcripts helped them think more deeply about the service and the quality of their own chats with patrons while on reference. It has been

---

[19] Elise Ferer, "Soaring into the Future of Chat Reference: Assessing for Quality in Cooperative Chat Reference," Binghamton University Libraries Subject Guides, last modified June 1, 2022, https://libraryguides.binghamton.edu/chatquality

recommended that the rubric and other resources created through this project be shared with librarians for training purposes.

Current state of CWAL

Drexel University Libraries continues to use the CWAL service as a back-up reference provider. Many of the same issues continue today, but local reference providers are now aware of them and able to either proactively address them or have a plan in place to address them as they arise. During the course of this research, it became clear that it was simple to follow up with consortial librarians when we noticed incorrect information being given out or had actionable feedback on a transcript. This remains a way to ensure quality of the service of consortial librarians.

Discussion

There were several interesting lessons in the process of creating a rubric, rating transcripts and reviewing the data. Some of what was learned had a direct result on the way librarians conducted chat reference. In addition to this, the authors think that this project placed an emphasis on the importance of reference and chat reference in the library. Still, there are many things that could be changed and that were learned about the process of assessing services within a library.

One of the early issues that the group dealt with was the rubric itself. It was not flexible enough to account for all the types of interactions that happened in chat reference. Early on, some of the chat transcripts that were rated did not neatly fit within the rubric either because patrons disappeared before a librarian could understand the questions being asked or provide a full answer.

Once the librarian managing reference started to analyze the data, they discovered that there were transcripts in which librarians strongly disagreed on their ratings. Most of the areas on the rubric were rated on a scale of 1-5, so when there was a strong disagreement, the ratings were not just sequential as in one librarian rated the transcript a 3 for accuracy, while another rated it a 4 for accuracy. In these cases, one librarian gave a rating of 5, while another gave a rating of 3 or below. This called out the need to spend more time "norming" the rubric, as in discussing how different types of interactions might be rated. Alternatively, the groups could have spent time after rating transcripts working through these differences together. Sadly, as a team it was not always possible to discuss how we rated different transcripts or change our ratings after a discussion. If embarking on a similar project in the future, it would be wise to ensure there is time to come to a consensus before or after any assessment using a rubric.

Some of the gaps in knowledge exhibited by librarians from other institutions were anticipated such as local details about Interlibrary Loan, database troubleshooting because the library could not provide sign-on detail, and gaps in specialized knowledge when it came to subjects such as nursing and engineering. These librarians often struggled with local information such as those outside the Drexel community who wished to visit the library, alumni library privileges, and questions about other local details. These items could be difficult to find on the website, even for Drexel Librarians so they were added to internal and external FAQs.

One interesting point of confusion came up around the term co-op. Drexel offers a robust cooperative education program and nearly all undergraduates complete at least one co-op. Librarians

from other institutions would refer to themselves occasionally as the "co-op librarian" as in the librarian serving in a reference cooperative. But to a Drexel student this could be interpreted as a librarian specifically devoted to the co-op program or potentially a student working as a librarian at Drexel for their co-op placement. Luckily, there is a means to contact librarians individually and it was easy to explain this issue to any librarian who used this terminology.

Throughout the Summer quarter librarians noticed many transcripts in which patrons disappeared after learning that a librarian was not a Drexel librarian. Due to the common nature of patrons on chat "disappearing" for a variety of reasons such as internet connection, finding what they needed, lack of patience, etc., it is difficult to prove that patrons are not interested in chatting with librarians that are not from their own campus library. Hopefully this can be investigated in the future.

Those who were rating transcripts noticed that the process of using the rubric frequently improved their own perceived reference skills. The rubric gave one the opportunity to consider the best practices for librarians performing chat reference and the process of rating often allowed one to reflect on how they might have answered a question. These aspects likely assisted in improving the reference skills and behaviors of local librarians. Librarians commented:

> As a newer member of the Liaisons team, this project not only gave me the opportunity to assist with contributing to the assessment of chat transcripts, but also allowed me to learn the chat norms and values of my new Drexel Liaison colleagues. The most valuable experiences were when disagreements arose with the evaluation of a transcript. Listening to the reasons for and against a certain decision, as well as the final consensus, provided an important view into how my new colleagues approached chat reference. This continues to influence my work today.

> ...it affected my chat responses going forward. I realized that was not the goal of the project, but the rubric was a reminder to keep questions open ended and to rephrase when necessary…the project helped to remind our staff about expectations in addition to evaluating the [c]ooperative librarians.

This study reaffirms what many librarians know about reference services whether they are provided online or in person: accuracy is subjective and depends upon the patron and the librarian working with them, listening to our patrons and asking questions is at the heart of all reference and each of us approach this in a different way. As librarians we are shaped by our experiences, the culture of the environment we work in, and our training and education. While local differences may be difficult to bridge in a consortial worldwide chat service, these librarians should be encouraged to refer patrons back to their local librarians.

Future directions

Throughout the process of developing this project, rating transcripts, and presenting the data to others, there has been interest using the rubric to assess local chat transcripts. When this project was envisioned as a way to investigate the chat services of a statewide and worldwide chat service, we had no interest in comparing our own chat transcripts to those of outside librarians. It was also a challenge to rate all the transcripts from outside librarians during this short time period. For all these reasons we chose to focus on rating chat transcripts from outside librarians. Now that this project is complete, it

would be interesting to use the same rubric to assess local chat service quality. As both authors are now at different institutions with differing responsibilities, this may or may not happen.

Conclusion

As librarians find themselves collaborating across institutions in the future through cooperatives or consortiums, we hope that examples like ours can assist in helping others understand if cooperative chat services are the right fit for their patrons. These services can make our libraries more accessible to online patrons and/or those who are in a different time zone or do not share a library's business hours. We also are hopeful that others can learn from our example when developing a similar assessment project, assessing chat reference, or thinking about how they can ensure the quality of reference for their own patrons.

We developed the project to assess chat transcripts as a means to evaluate the quality of reference service that librarians from other institutions could provide to our patrons. While there was concern (likely shared by other librarians) that only we could help our patrons, we found through the process that we could trust other librarians to help our patrons outside of our regular working hours with our support and monitoring of the service. Importantly, we also improved the reference services that we offered by reminding ourselves of our own best practices through regular usage of our rubric.

Table 1. Rubric ratings with averages.

	5	4.0-4.9	3.0-3.9	2.0-2.9	1.0-1.9	N/A	Average of all ratings
Questioning/Listening	61	3	4	6	4	42	4.45
Communication/Contact	24	79	14	3	0	0	4.38
Accuracy	11	54	38	7	1	9	3.92
Follow up/Closing	26	23	17	16	1	37	3.89

Appendix A. Rubric used to assess chat transcripts for librarian behavior.

How quickly is the chat picked up?		Chat is picked up with 30 seconds.	Chat is picked up within a minute.	Chat is picked up within 90 seconds.	Chat is picked up within 2 minutes.	N/A (person disappears before chat can be picked up.)
Select one:						
How does the librarian greet user?		Librarian identifies they are not local to Drexel.	Librarian does not identify they are not local to Drexel.			
Select one:						
Librarian makes a connection to a specific person or service (like Illiad, reserves, archives, etc. and/or and associated email address like LibAssist@drexel.libanswers.com.		Yes, to a service/person who will be able to assist.	Yes, to a person/service who will not be able to assist (or will send the user to another person/service).	Not Applicable	No, and I would have chosen to make a connection to a service/person.	
Select one:						
	N/A	5 Excellent	4 Good	3 Satisfactory	2 Poor	1 Unacceptable
Questioning/Listening	Patron makes their need very clear	Asks open ended questions to understand user's query, and rephrases a user's query when necessary. Uses closed questions to confirm understanding when necessary.	Asks open ended questions to understand user's query when necessary. Uses closed questions to confirm understanding when necessary.	Asks questions to understand user's query when necessary, but does not seek to confirm understanding of a query.	Fails to asks questions when appropriate (or needed) to understand a query.	Makes assumptions about what a user seeks.

Communication/Contact		Maintains written contact with user responding to messages > 30 seconds and updating the user > 2 minutes when searching, uses no jargon.	Maintains written contact with user responding to messages > 1 minute and updating the user > 3 minutes when searching, explains library jargon.	Maintains written contact with user responding to messages > 2 minutes and updating the user > 5 minutes when searching, uses jargon in context.	Maintains written contact with user responding to messages > 3 minutes and updating the user > 7 minutes when searching, uses jargon.	Fails to maintains written contact with user, uses jargon and refuses to define jargon when asked.
Accuracy (note: correct is a subjective term)	N/A i.e. a complete answer is not necessary and/or person disappears.	A complete and appropriate answer is given (when applicable). If not applicable, an accurate and complete referral is completed, such as creating a ticket or identifying the appropriate person/service to contact. If a resource is given it is a reputable and reliable resource.	An appropriate answer is given (when applicable). If not applicable, an accurate referral is completed, such as creating a ticket or identifying a libguide, or the correct person/service to contact. If a resource is given it is a reputable resource.	A partially correct answer is given (when applicable). If not applicable, an accurate referral is completed, such as identifying a user or a libguide. If a resource is given it may not be a reputable, reliable, or useful resource.	An incorrect or misleading answer is given (when applicable). If not applicable, an incomplete referral is completed, such as telling a user to search for a libguide or telling them to search the website for an answer. If a resource is given it may not be a reputable, reliable, or useful resource.	An incorrect answer is given (when applicable). If not applicable, no referral is completed. If a resource is given it is not reputable, reliable, or useful.
Follow up	Patron disappears	Librarian confirms that the	It is clear that the user has what	It is clear that the user has	It is assumed by the librarian	Librarian shows no interest in

	quickly/no confirmation is necessary	user has what they need. AND/OR Librarian tells user to return with questions later.	they need from the transcript. AND/OR Librarian tells user to return with questions later.	what they need from the transcript.	that the user has what they need.	making sure user has the information they were looking for.

Elise Ferer, Jay Bhatt, Sam Kirk, Jen Lege-Matsuura, Janice Masud-Paul, Kathleen Turner