The purpose of this study was to examine the effectiveness of the chat reference interview as performed by the libraries at the University of North Carolina – Chapel Hill. Chat transcripts containing were purposively selected from two periods, October 1 – 21, 2015 and March 1 – 21, 2016. These two periods were selected in order to give the study a view of chat reference as conducted by staff at different points in training and with different levels of experience. These transcripts were analyzed according to a series of questions, in order to determine whether or not the reference interactions resulted in the satisfaction of a patron’s information need. Through this analysis, it was determined that the reference interview as performed at UNC is effective, but incomplete implementations of the interview create significant barriers to the successful completion of reference interactions.

Headings:

Library reference services

Electronic reference services (Libraries)

Virtual reference services (Libraries)

Reference interview

Chat Reference
HOW CAN I HELP YOU? AN EXAMINATION OF THE CHAT REFERENCE INTERVIEW AS PERFORMED AT THE UNIVERSITY OF NORTH CAROLINA – CHAPEL HILL

by
Ian G. Moore

A Master’s paper submitted to the faculty of the School of Information and Library Science of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Science in Library Science.

Chapel Hill, North Carolina
April 2017

Approved by

_______________________________________
Casey Rawson
Table of Contents

Introduction ......................................................................................................................... 2

Literature Review ............................................................................................................ 4

Methodology .................................................................................................................. 14

Strengths and Limitations ............................................................................................. 18

Results and Discussion ................................................................................................. 19

Conclusion .................................................................................................................... 37

References ....................................................................................................................... 40

Appendix A: IRB Approval Letter .................................................................................. 45
**Introduction**

For nearly 150 years, the reference interview has served as the process by which librarians determine a patron’s information need and how it might best be satisfied. Born out of the reference services described by Boston librarian Samuel Green in 1876, the interview has persisted through periods of technological change. Face-to-face interviews are no longer the only method of providing reference service. Telephone reference became increasingly common by the 1930s (Selby 2007), followed several decades later by email, and, of course, internet chat. Chat reference is still relatively young. Less than 20 years since its mass-market introduction, academic libraries across the United States have adopted chat as a critical component, and indeed a pillar, of effective reference service. Among institutions granting doctoral degrees, more than 76% offer some form of chat reference (Phan et al, 2014).

Much like face-to-face reference and phone calls, chat is synchronous. That is, all interaction with the patron takes place in real time. It is worth noting, though, that unlike the former types of patron interactions, chat removes the ability to read either the patron’s tone of voice or body language. The challenge of chat reference, then, is for librarians to make the reference interview as effective within the context of as it is in person. If chat reference is to continue to be an effective tool through which to conduct reference interactions, librarians must be willing to take into account the unique conditions under which the chat reference interview is conducted, and adapt the form of the interview accordingly.
The libraries at the University of North Carolina - Chapel Hill operate a chat reference service staffed by reference librarians, library staff, and graduate students from UNC’s School of Information and Library Science. Patrons of the service include undergraduate students, graduate students, faculty, and residents of the state of North Carolina. This chat service, with its broad patron base, is the ideal focus for an investigation of the chat reference interview. This study will consider the reference interview within the frame of chat, and what implications the use of that medium has for the successful implementation of the reference interview at UNC-Chapel Hill.
**Literature Review**

Libraries both public and academic have offered reference services to patrons since the late 19th century. In 1876, Samuel S. Green, librarian at the Worcester Free Library in Worcester, Massachusetts, published “Personal Relations Between Librarians and Readers.” Green’s article clearly defined work that many libraries were already offering and spurred further growth and development in the field of reference. Green offers what might be considered the classic model of reference. He suggests that librarians should not place the burden of finding and selecting resources on the patron. Rather, Green argues, it is incumbent upon librarians to identify the information a reference patron is seeking and provide specific resources in response.

The development of reference services after Green’s paper proceeded relatively quickly. Samuel Rothstein, writing in 1960, notes that by 1887, the Boston Public Library’s Examining Committee agreed that they should make available within the library “a person whose sole duty it would be to answer questions of all sorts, and to direct inquirers in their search for information” (p. 162). For the most part, that person in the Boston Public Library would have answered questions face-to-face in an interview with all “the advantages of a conversation between two people with the full range of visual and aural cues that aid in good communication” (Selby, 2007, p. 36).

Two trends emerged in reference as the nineteenth century drew to a close. Deng (2014) says that “specialized reference assistance largely remained an uncharted territory until the beginning of the twentieth century” (p. 256). Specialized reference included new
reference services for law and business. At the same time, Selby (2007) finds librarians
beginning to take advantage of the new opportunities offered by the telephone, the first
new medium through which modern reference was conducted. Reference service by
telephone, Selby writes, was “a revolutionary new type of patron service, with
convenience to library users as the focal selling point” (p. 36). These two trends,
increasing access and increasing specialization, propelled professional reference work
into the twentieth century.

By the 1990s, the emergence of new technologies allowed reference departments
to operate remote services. Email permitted asynchronous communication to be handled
rapidly and effectively. Eventually, libraries adopted synchronous services. Chat and
instant messaging allowed users to ask questions from a computer, while also giving
librarians the ability to provide links to sources, much as they might through email
(Tyckoson, 2011, p. 267).

As reference services have expanded, the reference interview has remained
relatively static. Samuel Green’s 1876 article reminded librarians to display “ready
sympathy with rational curiosity” (p. 165), to “teach [inquirers] to rely upon themselves
and become independent” (p. 166), and neither to “give legal advice nor undertake to
instruct applicants in regard to the practical manipulations of the workshop or laboratory”
(p. 163). These basic guidelines are not so very different from those offered up by the
Reference and User Services Association (RUSA).

RUSA breaks the reference interview down into five component parts. These are:
1) Visibility/Approachability, 2) Interest, 3) Listening/Inquiring, 4) Searching, and 5)
Followup (RSS Management of Reference Committee, 2013). Visibility/Approachability,
Interest, and Listening/Inquiring are clear expressions of Green’s ready sympathy and rational curiosity. The modern reference librarian must be willing to engage with a patron and define the patron’s information need in much the same way Green suggests. Similarly, RUSA’s Searching guidelines suggest that a librarian “explain the search strategy to the patron,” “explain how to use sources when appropriate,” and help the patron “learn to answer similar questions on his/her own” (RSS Management of Reference Committee, 2013).

The RUSA guidelines are intended to “aid librarians and information professionals during the reference process” (RSS Management of Reference Committee, 2013). They create a standardized set of expectations for librarians engaged in reference work, as well as a standard for a “successful” reference interview. This imposes a degree of uniformity on the reference experience. These guidelines, however, are just that: guidelines. Librarians are in no way required to carry out the reference interview in the manner recommended by RUSA.

The literature contains any number of studies considering best practices in the reference interview. Perhaps the most well-known practice is the determination of what a librarian conducting a reference interview might consider the patron’s “real” information need. It is easy for a librarian to answer the question the patron asks, but does that satisfy the need that prompted the question? Brown (2008) argues that there can come to be “a fundamental conflict between what the [patron] asks and the material that would answer his question” (p. 2). It is incumbent upon the reference librarian to inquire further and begin the reference interview even if a patron asks what might, on the surface, appear to be a straightforward question.
Doherty (2006) counters that this assumption tends to “devalue the expertise and experiences of the user” (p. 100). After all, he argues, patrons ask the questions they ask for a reason. To automatically assume that a patron is not familiar with what he or she needs could be considered patriarchal or condescending. Doherty does concede, however, that for many patrons the lack of clarity in the question “is indeed the case” (p. 100).

Other authors do, to a certain extent, concur with Doherty. Dewdney & Michell (1997) note that, while librarians have been trained to view the reference interview as a very particular sort of interaction, “most users do not see it as a special kind of conversation” (p. 61). Librarians interviewed in a 2005 study agreed that all reference interviews “should follow a standard procedure regardless of the nature of the question” (Eberle, p. 31). Considering this is the case, Dewdney & Michell conclude that it can be difficult for librarians to begin the reference process without seeming intrusive. “Why” questions (e.g. Why do you need this information? What project is this for?) need to be framed in such a way that the librarian avoids the condescension Doherty is concerned about.

The interpersonal dynamic that concerns these authors is, to a certain extent, brushed aside by Coonin and Levine (2013), who argue that reference might be better served if performed through a checklist system. Each step of the reference interview, from approachability to the followup, should be, according to the authors performed in order and with precision. Citing a 1985 study that concluded “one’s reference performance should improve dramatically” (Gers & Seward, p. 35) with the use of a checklist, Coonin and Levine urge librarians to treat the reference interview not only as a specific type of interaction, but as a scripted interaction, complete with smiles at the
appropriate moments. The RUSA guidelines might, then, form the basis of that script, with each phase carried out in the order presented.

The trouble with the idea of scripting the interview to such a large extent is that it does leave librarians and patrons unable to make full use of Selby’s “full range of visual and aural cues that aid in good communication” (2007, p. 36). Radford (1996), says that “clearly, the relational needs of users have to be met along with their information needs” (p. 125). That is, positive interaction can be scripted, but if it rings false or feels artificial to the patron “even when the appropriate information is obtained, the user may still leave the interaction with a negative impression of the librarian and of the library experience in general” (p. 125).

Radford goes on to note that, in his own study, “users reported centering on relational aspects with greater frequency than did librarians” (p. 132). It is true that having a checklist as a reminder of priorities in the reference interview is no bad thing. However, Radford makes a strong case for placing a greater emphasis on relational cues than on a strict form. What happens, though, when a reference interaction takes place through a medium that does not have the “full range of visual and aural cues?” How does chat reference fit into this picture?

As compared to telephone and in-person reference, virtual reference is a relative newcomer in libraries. Sloan (2006) points out that certain libraries were conducting email reference by the late 1980s (p. 92), while experiments with technologies that approximated chat reference began in the early 1990s (p. 93). These experiments ultimately led many libraries to implement chat reference services alongside their more traditional reference offerings. The Duke University Libraries represent a typical case.
According to Phil Blank, a former Duke reference librarian, Duke Libraries implemented its chat service in the fall of 2001, after spending roughly a year evaluating user needs and expectations for the new service (2003, p. 220). The initial implementation did not necessarily get the amount of traffic anticipated, but Blank noticed something else that he found interesting. “The virtual format…” he writes, “is more conducive to open and honest communication than any of the other formats” (p. 222). Blank found that students were more willing to admit what they didn’t know when they were operating remotely, and didn’t have to concede any ignorance in front of a real person.

Is this the case in every virtual reference situation? Dempsey (2016) found that the success or failure of a chat reference interaction depended in large part on the enthusiasm and warmth of the librarian answering the question. Dempsey argues that the most successful reference interviews are conversations, with a real back-and-forth between the patron and the librarian. To open a chat without a relational cue, a greeting or an enthusiastic offer of assistance, is to Dempsey an initiation of a transaction, not a conversation. Transactions, he finds, are much briefer on average, and feature less enthusiasm from the patron as well as the librarian (p. 461).

Thompson (2014), makes a case for scripting chats to some extent. Using a script, she argues, guarantees a certain degree of uniformity in chat reference. However, she says, “scripts should be viewed as a part of an answer rather than a complete answer in and of themselves” (p. 366). Using a script for all of a reference chat leads to the same issues created by the checklist. These methods can be impersonal. If a script guarantees
that a relational cue starts the chat and begins a conversation, that is a positive good. Librarians must be careful, though, to keep the chat personal and engaging throughout.

Time is an issue as well. Lee (2004) found that a 163-word conversation took 600% longer over chat than it would have in person (p. 105). The dragging out of the interview process created by the slow response speed can exacerbate other factors, such as the intrusiveness of the “why” questions Dewdney considered. Lee writes that “When using text to elicit information we run the risk of sounding like we are playing ‘20 questions’” (p. 105). The irritation or impatience caused by what the patron may not have thought of as a specialized form of interaction is increased when the process is extended and no clear result is in sight.

Several studies have considered chat reference in the light of the RUSA reference interview guidelines. The most important of these studies predate the 2013 revisions of these guidelines. However, Schwartz (2014) argues that “the virtual reference interview requires the development of unique standards” (p. 11). He contends that RUSA’s “elements of approachability, interest, searching, and follow-up still apply, but they need to be modified to take into account the fact that the patron is not physically present” (p. 11). The guidelines are not universally regarded as being completely relevant to chat reference.

In one 2007 study, librarians were found to be good at establishing some form of rapport with patrons, but did not adhere to other parts of the guidelines. RUSA suggests that librarians use “open-ended questions to encourage the patron to expand on the request or present additional information” (RSS Management of Reference Committee, 2013). In the 2007 study, “less than half of librarians in the sample (41%) used open-
ended questions to encourage the user to share more details about what the user hoped to find” (Ronan, Reakes & Ochoa, p. 17).

A similar study, run in 2011, found that, for the most part, librarians did follow the RUSA guidelines. However, the current guidelines do require that librarians respond “in a timely fashion to remote queries” (RSS Management of Reference Committee, 2013). While the guidelines were updated in 2013, in part to reflect the increasing importance of virtual reference, it is reasonable to expect that quick response times are part of providing excellent service. Zhuo et al. found that “nearly 10% of the sessions showed an unexplained delay between client greeting and reference response. Moreover, during the time in which these chat samples were collected, clients may have contacted the service, received no immediate reply, and terminated the connection” (2011, p. 87).

Methodology has varied widely from study to study. Dempsey (2016), used purposive sampling to select reference chat transcripts from two separate universities. Her samples were intended to be from a time when students were likely to be working on research questions. Dempsey studied opening exchanges in the chat transcripts without reference to standards either from RUSA or the institutions from which the chats came. Each transcript was carefully anonymized.

Croft and Eichenlaub (2006) studied the effectiveness of email reference. They used a sixteen question survey. The survey measured patron satisfaction with the reference service in regard to both sending questions and receiving replies. The survey was targeted to students, excluding “university staff, alumni, and members of the public” as well as patrons who had “inquiries that were directional in nature” (p. 128). As this
study was intended to measure patron satisfaction, Croft and Eichenlaub make no reference to the RUSA reference guidelines.

Writing in 2015, Armann-Keown used quantitative analysis to evaluate chat transcripts from a three-month period. The intent was “to ascertain the types of questions being asked” (p. 659). Similar methods were used by Ward & Kern (2006), Goda & Bisshop (2009), and Harmeyer (2007). Each study justified to some extent the continued staffing of chat with librarians because of the relatively high number of reference questions asked.

Content analysis is also frequently used. Morais & Sampson (2010) coded transcripts from the Georgetown Law Library to determine which types of patrons were asking which types of questions. Fennewald (2006) considered the transcripts of reference chats and coded them for question type. He then compared the question types to librarian-reported data from the reference desk. Desai & Graves (2008) used content analysis to examine “teachable moments” in virtual reference transactions. They looked at moments when patrons asked for forms of information literacy instruction, and instances when librarians provided instruction unprompted.

Two major studies have considered the reference interview within chat as compared to the RUSA reference interview guidelines. Both Ronan et al. (2007) and Zhuo et al. (2011), discussed above, found that librarians deviated from the RUSA standards. Ronan noted issues with open-ended questions, while Zhuo found problems with prompt response time. Both studies looked only for adherence with the RUSA guidelines. Neither performed content analysis of the transcripts in their entirety.
The questions raised in the present study are drawn in part from issues raised in the literature. Questions about relational cues seek to establish the extent to which librarians were able to establish a conversation rather than a transaction. Questions related to the length of the interaction were asked as well. This study considers the effectiveness of the chat reference interview when it is or is not conducted according to the RUSA guidelines, with a specific focus on the success or failure of a given interaction.
Methodology

This study was conducted through qualitative analysis of reference chat transcripts drawn from the chat service run by the libraries at the University of North Carolina - Chapel Hill. Content analysis was selected due the challenges presented by the questions the study seeks to address. The study depends in no small part on the ability to determine the “success” of a given reference interaction (success being dependent on whether or not the expressed information need of a patron was met during a given reference interaction). This fact made manual content analysis preferable to sentiment analysis tools.

The chat transcripts selected for analysis were operated by librarians at either the University of North Carolina’s Davis Library or R.B. House Undergraduate Library. Other libraries on campus, including the Health Sciences Library and the Kathrine R. Everett Law Library, do operate chat services. However, these services are focused on specific disciplines and issues relevant only to their patron bases. As such, these chats were excluded in favor of the more generalist interactions from the Davis and Undergraduate libraries, with the intention of creating a sample that contained a broader range of question types and subjects.

Purposive sampling was used to select transcripts from October 1 – October 21 of 2015 and March 1 – March 21 of 2017. These two periods were selected in order to give the study access to more interactions, as both periods overlap with midterm exams for their respective semesters. The overlap with midterms was intended to select from a period during which students were likely to be working on research projects. The periods
were also intended to permit a view of the wide range of levels of experience among the librarians responsible for operating the chat service.

The chat service run by the Davis and Undergraduate libraries is operated by a mix of subject librarians, library staff, and graduate student assistants from the University of North Carolina’s School of Information and Library Science. The graduate students may have anywhere from no experience to one year providing reference services. Each year, half of the students are new hires. In the October 2015 time-period, then, these students would only have been working at a reference service point for one month. By March of 2016, they would have gained additional experience. Similarly, some of the staff working at the service point were new to reference service. Combining chats from the two pools gives the study a sense of the effectiveness of the chat service over the entire academic year, rather than just at a specific point in the training of those new to reference work.

When the chat transcripts were selected, each was anonymized. Dates, phone numbers, personal identification numbers, email addresses, and any other personally identifying details were removed (see IRB Approval Letter, Appendix A). Any chats that did not contain reference interactions were discarded. The UNC – Chapel Hill Libraries operate an evening chat service with the Duke University and North Carolina State University libraries. Any chats containing communications from staff members at these libraries were also discarded.

A series of questions derived from previous literature was applied to each chat transcript, with the intent of developing a set of qualitative data supplemented with quantitative findings. The following were the questions applied to the transcripts:
• Does the librarian open the interaction with a relational cue?
• Does the librarian close the interaction with a relational cue?
• Is the reference interview process begun when a patron asks a reference question?
• Is the reference interview process completed?
• When the reference interview is used, how long is the chat (in minutes)?
• When the reference interview is not used, how long is the chat (in minutes)?
• If the interview is not completed (i.e., the librarian searches without getting all the information), does this result in a successful interaction for the patron?
• If the interview is interrupted (i.e., the librarian searches for information without completing the interview) and the librarian is unable to find what the patron is looking for, does the librarian resume the interview?
• If the interview is resumed, does it lead to a successful interaction for the patron?
• Does using the complete interview result in a successful interaction for the patron?
• If the interview process is not completed, does this result in a successful interaction for the patron?
• Does the patron express impatience with the interview?
• Does the patron express satisfaction with the reference interaction?
• Does the librarian follow up (i.e. ask the patron if the interaction was helpful)?

These questions, taken together, serve to ask to what extent chat reference as performed at UNC – Chapel Hill is effective.

Maintaining consistency over the course of the analysis required ensuring that the definitions of each term remained constant. Inconsistent application of the questions, or
shifting definitions of key terms, would undermine the reliability and validity of the study. For the purposes of this study, the following terms were defined:

- **Reference interview** – The reference interview and interview process are as defined in the RUSA guidelines, incorporating the recent revisions referring to virtual reference (RSS Management of Reference Committee, 2013).

- **Success** – The extent to which a patron’s expressed information need was or was not met during the reference interaction.

- **Satisfaction** – An expression of thanks for services rendered by the librarian.

- **Follow up** – As referred to in the RUSA reference interview guidelines, follow up consists of either a query by the librarian as to the success of a reference interaction, or an offer of future assistance.

- **Relational cue** – An expression of greeting, farewell, or other personable attempt at interaction.

- **Impatience** – An expression of frustration from the patron at the results, pace, or progress of the reference interaction.
Strengths and Limitations

The primary strength of this study is the combination of qualitative analysis coupled with quantitative data. Coupling both types of data gives the study a more comprehensive view of the material contained within the selected transcripts. At the same time, the incorporation of the quantitative data insulates the study to a certain degree from the subjectivity of a purely qualitative study.

As I conducted this study by myself, my own biases and preferences did inevitably affect the results. I am employed at the reference desk in UNC’s Davis Library, and I conducted a number of the chats contained in the sample. However, the operator of any given chat could not be positively identified. The use of the RUSA guidelines was intended to move the concept of the reference interview away from my own conception of it and toward a broadly recognized formulation. However, it is impossible to prevent my biases from affecting my analysis. Future work in this area would be best conducted with partners, in order to avoid my individual biases.
Results and Discussion

Results and discussion will be presented together in order to promote the clarity of the discussion. The sample examined here consisted of 102 chats. From the fall 2015 period (October 1 – October 21), 50 were drawn. The remaining 52 were drawn from the spring 2016 period (March 1 – March 21).

First and foremost, the responses to the individual questions posed during analysis of the transcripts must be considered, beginning with relational cues. Almost invariably, the librarians staffing the chat service did answer patron inquiries with some form of relational cue.

<table>
<thead>
<tr>
<th>Does the librarian open with a relational cue?</th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>91</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Does the librarian close with a relational cue?</td>
<td>68</td>
<td>26</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 1

As noted in Table 1, in 91 of 102 chats, the librarian opened with a relational cue. Three chats were not answered with relational cues, while eight were not answered at all. It is worth noting that these eight chats were received during business hours and each was a legitimate reference query. Only 68 of the interactions were concluded with relational cues. Of the remaining 34 interactions, 26 were not concluded with relational cues and 8 were unanswered.
In each case in which the librarian did not open with a relational cue, either the librarian instantly began to search for answers to the patron’s query, or a question was asked of the patron. In essence, the librarian did not seek to establish a friendly tone, but instead jumped straight into searching for a result. The following exchange is an excellent illustration:

10:56PM Patron: looking for old newspapers advertisements
10:56PM Patron: have database that can search text of 1980s ads?

10:57PM Librarian: I will look.
11:03PM Librarian: [link to Proquest Historical Newspapers]
11:04PM Librarian: In the Proquest Historical Newspapers database you can limit by Advertisements.
11:04PM Librarian: do a keyword search and limit by Document Type Advertisement
11:05PM Librarian: It might be more effective to scroll through the newspapers on microfilm.

Here, the librarian omitted the greeting and began searching immediately. When, later, in the exchange, it emerged that the patron had a very specific advertisement in mind, the librarian continued to push the same source, despite the patron’s provision of an article that did not mention the advertising campaign they believe it does. The patron’s question was based on a faulty premise, but the librarian did not account for this. Finally, it emerged that the patron was not affiliated with the University of North Carolina, and the patron left abruptly. Having begun without greeting the patron, the librarian initiated what Dempsey (2016) describes as a transaction. There was no sense of shared enterprise or common ground, and the librarian is set on the patron utilizing the offered resource rather than attempting to verify the existence (or nonexistence) of the ad campaign.

Simultaneously, the librarian responding to this chat failed to begin a reference interview. They did not ask the patron if this was for a specific project, or ask whether the patron was looking for a specific ad. There is no sense that the librarian was willing to try
to determine the patron’s specific need. In this, they are not alone. Table 2 shows the extent to which the reference interview was utilized when a patron asked a reference question.

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the reference interview process begun when a patron asks a reference question?</td>
<td>67</td>
<td>35</td>
<td>N/A</td>
</tr>
<tr>
<td>Is the reference interview process completed?</td>
<td>30</td>
<td>37</td>
<td>35</td>
</tr>
</tbody>
</table>

Table 2

In approximately two-thirds of the chats from the sample, librarians did begin reference interviews on the receipt of reference queries, whether at the outset of the interactions, or as follow-up to non-reference queries. In 67 of the chats, at least a portion of the reference interview was implemented In 30 of those chats, the reference interview was, according to the standards laid out by RUSA, carried out in its entirety. In 37 chats, the interview was begun, but not completed. This begs the question of whether or not the completion of the reference interview has a demonstrable impact on the success or failure of a given reference interaction. In terms of this study, success means meeting a patron’s expressed information need. Is a complete reference interview more likely to result in success for a patron than a partial interview or none at all?

In 1986, Peter Hernon and Charles McClure found that, on average, reference librarians successfully answer approximately 55% of reference queries (p. 41). To note, then, that 66% of the chats examined were successful is not to identify some flaw unique
to the University of North Carolina’s reference service. This rate of success is in no small part attributable to the success of fully implemented reference interviews.

<table>
<thead>
<tr>
<th></th>
<th>Successful</th>
<th>Unsuccessful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete reference interview</td>
<td>29</td>
<td>1</td>
</tr>
<tr>
<td>Incomplete reference interview</td>
<td>21</td>
<td>16</td>
</tr>
<tr>
<td>No reference interview</td>
<td>16</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3

As Table 3 demonstrates, a much higher proportion of those interactions in which the complete reference interview was carried out were successful. Of 30 complete reference interviews, only one was unsuccessful. In the case of those in which an incomplete reference interview was implemented, 16 of 37 were unsuccessful. However, there is a wrench in the works of what might otherwise be a relatively clear-cut case. In chats when no reference interview at all was used, 10 of 26 were unsuccessful. This means that when the reference interview was used, but not completed, 43% of the chats resulted in unsuccessful interactions. When the reference interview was not used, 38% of the chats resulted in unsuccessful interactions.

In essence, the partial implementation of the reference interview achieved very similar results to not using the interview at all. In fact, when librarians did not use the interview, they achieved slightly better results than their counterparts who did not complete the full process. What might cause this?

When a reference interview begins, but is not completed, some step in the process was likely either missed or poorly implemented. The RUSA guidelines offer clear
recommendations for five separate elements of the process: visibility/approachability, interest, listening/inquiring, searching, and follow-up (2013). The librarian must respond quickly, appear invested in a patron’s question, clarify any elements that are unclear, offer a transparent search process, and offer some form of follow-up. These elements do not all have to happen in a certain order. A librarian can continue to demonstrate interest and inquire for clarification during the searching phase, for instance. Together, though, the elements compose a vision of a comprehensive and effective reference interview.

In the transcripts where not all the elements worked as intended, breakdowns were noted. For instance, in the following interaction, the librarian did begin by adhering to the guidelines, greeting the patron and asking a clarifying question:

08:25PM Patron: hello. this might sound like a silly question but I was wondering if you could help me find a website or easy article from google on a topic for my essay?
08:26PM Patron the teacher asked specifically for a website from google on achievement motivation for young adults
08:26PM Patron: could you please help me?

08:27PM Librarian: Hello.
08:28PM Librarian: I'm not sure what achievement motivation is - could you tell me more about it?

08:28PM Patron: the definition I'm going off of is this:
08:28PM Patron: individual's need to meet realistic goals, receive feedback and experience a sense of accomplishment Read more: [link to further explanation]

The patron responded well, and a conversation, rather than a transaction, was initiated. However, what followed was neither further inquiry nor a search intended to guide the patron toward a successful conclusion to the interview. Instead the librarian simply suggested searching the library website, and only two minutes later, the interview concluded:

08:30PM Patron: I already did that and got very big articles. I am required to start with something simple on the web
08:31PM Librarian: Have you tried narrowing the library results down? I wouldn't suggest googling because you can get a lot of inaccurate information.

08:31PM Patron: yes I have

08:35PM Librarian: Okay, well if you want to google things, try using good keywords. 08:36PM Librarian: maybe try google scholar as well.

08:37PM Patron: okay, thank you

The patron made it clear that the information needed was not an academic article, but some form of introduction from another source, but the librarian passed that by. Instead, the librarian suggested that the patron try narrowing down the search results from the library site. However, the patron pointed out that they don’t need more specific results, just something more straightforward and easily approachable. The real breakdown doesn’t occur here, though. The librarian might still have suggested another source or asked what keywords the patron was using. Rather than do either of these things, the librarian suggested that if the patron really did want to perform a Google search, the patron should “try using good keywords.”

It is easy to see why the librarian here might not necessarily view this exchange as being particularly problematic. After all, the patron was sent away with a few options to search, as well as a basic search strategy. To the librarian “try using good keywords” may seem like sound advice because “good keywords” has a particular meaning in an academic library setting. The patron should use specific, relevant terms and be willing to investigate helpful search results for additional keywords, conducting a thorough search based on an evolving set of relevant words.

Where did this leave the patron? Probably not in a great place. After all, there was no search phase in this interaction. The RUSA reference guidelines suggest that a
librarian should work “with the patron to evaluate results, revise search terms, and identify other sources to try if the search is unsuccessful” (2013). This is the assistance the patron needed, was quite evidently seeking, and did not get. When the patron thanked the librarian, it was unclear if they were really satisfied with the assistance rendered, and the librarian did not attempt to offer any sort of follow-up.

The breakdown here is readily apparent. The librarian performed a perfunctory sort of inquiry, then failed to follow through with the rest of the interview. “Try using good keywords” serves as an inflection point, a moment when something substantial could have been offered, but was not, setting the results of the interaction in stone. The librarian’s lack of transparency and use of jargon lock the patron out, preventing them from getting the help they need.

Difficulties in the search process were not uncommon in the sample. Frequently, librarians would ask a brief set of clarifying questions, then begin to offer results, without explaining to patrons where they were searching, or what resources the patron might be able to investigate. The following example demonstrates a common type of unsuccessful interaction:

10:11AM Patron: Good morning. I'm need helping finding academic journals on psychoeducation for same-sex partners experiencing intimate partner violence. I need articles/journals that will provide support for this intervention.

10:12AM Librarian: Hi!
10:12AM Librarian: I'd be happy to help you. Just to get an idea of what you've found so far, where have you looked?

10:14AM Patron: I've been on the library reserves so far. I haven't gotten very far, so I figured I'd just ask instead of wasting time going in circles like I usually do...

10:15AM Librarian: No worries! Let me see what I can find for you. It'll be just a moment. Are you okay on time, or would you prefer I email you with what I find?
At the start of the interview, the librarian did ask the patron what they have found so far. The patron didn’t cite a specific source, so the librarian started searching. As in the previous example, the search process lacked transparency. The source the librarian offered may as well have appeared from thin air.

This interview was not successful for the patron, and failed to meet the RUSA guidelines at several points. First and foremost, the patron was not made aware of resources that might allow them to pursue their own research. The librarian might have mentioned a specific database or search engine, but did not take the opportunity. Second, the librarian did not make clear which keywords were being used to run the searches. The patron was likely more familiar with the subject than the librarian, given the specificity and technical nature of the inquiry. Making the keywords transparent might, in this case, have helped the patron to assist in refining the search process as it occurred.

While a clear and transparent search process is an important part of a successful result, it is important to note that this does not necessarily guarantee a successful interaction for the patron. A clear example of effective practice in this regard can be found in the lone chat containing a complete reference interview that did not result in success for the patron:

07:20PM Patron: Hi! I am trying to find a peer reviewed reference values of freezing point and Kf for stearic acid, but I cannot find it in google or google scholars is there any way you can help?
07:22PM Librarian: Hello!
07:23PM Librarian: My chemistry skills are a little rusty. Could you tell me more about a reference value?

07:24PM Patron: Hi! Yes! So reference values are just kinda like a "fixed facts"
07:24PM Librarian: Great! Thank you. That's very helpful.
07:24PM Patron: for example water's boiling point is 212F
07:24PM Librarian: What is kf?
07:25PM Patron: Kf is the molal freezing point depression constant!
07:25PM Librarian: You are on it!
07:25PM Librarian: I'm going to dig around a bit to give you some options. Give me just a moment.

From the beginning of the chat, the librarian was friendly. They used a relational cue, greeting the patron immediately. At the same time, they set the patron up as the subject expert, making it clear that they will need input from the patron in order to get effective results. This set up a conversation, not a transaction, drawing the patron into the process. As the chat progressed, the patron remained enthusiastic about the assistance received, but was not happy with the sources:

07:36PM Librarian: Okay! I have another option.
07:37PM Librarian: [link to a list of sources]
07:37PM Librarian: Search under Gale Virtual Reference Library
07:38PM Librarian: If you type stearic acid, you'll be able to see a more introductory article
07:40PM Librarian: Are you able to see it?
07:40PM Patron: Yes! There are sources that states the melting point, but not the freezing points. So weird..

Ultimately, the issue the patron and the librarian ran into was not a problem with the reference interview. Technically, the librarian conducting the interview did everything correctly, asking clear clarifying questions and guiding the patron to sources in such a
manner as to make the search process relatively transparent. This search process is an excellent example of precisely the practices the previous interactions were missing. What let the patron and librarian down here was a mutual lack of content knowledge. In finding the melting point the librarian unknowingly answered the patron’s question: a substance’s melting and freezing points are the same temperature (Freezing and melting, 2000).

As noted earlier, a number of chats containing no reference interview at all were successful. In total, 16 of the 27 chats in which no reference interview was carried out resulted in a successful interaction for the patron. In these cases, queries tended to be focused on locating a single result, as in the following instance:

11:27AM Patron: Hi, I'm looking for a broad article on rotator cuff tears. Not any specific study, but a broad article that is still peer reviewed. Does such thing exist?

11:28AM Librarian: hi
11:28AM Librarian: I am glad to help
11:28AM Librarian: let me take a look.
11:34AM Librarian: I found an article using the main search box on the library's web page, which is: [link to article]

11:34AM Librarian: Are you able to open this link? if so is this what you are looking for?

11:35AM Patron: this is perfect, thank you!!!

The librarian believed they had been provided with enough information to meet the patron’s need. As a result, rather than asking any clarifying questions or detailing the search process, they provided the patron with a result. The entire interaction lasted less than ten minutes, and the patron was satisfied with the result provided. The librarian may not have given the patron the tools to find their own way next time, but the information need expressed at the opening of the chat was met.
In this situation, the librarian made assumptions about what they know. The flipside of this is making assumptions about what the patron knows. The following example resulted in success for the patron, but the librarian omitted explanations that might have made the patron’s search process simpler:

04:42PM Patron: oh ok thanks!! do you have any additional recommendations for looking for this kind of information?

04:44PM Librarian: We do have a number of books on the subject. If you use the subject heading city planning--technological innovations

04:44PM Librarian: a number of relevant books are listed there

04:45PM Librarian: A search for "smart cities" will also pull up a number of relevant books in the catalog.

04:45PM Patron: oh ok thank you. it will search through all of unc's libraries, correct?

04:45PM Librarian: Yes!

04:46PM Patron: thanks for your help! have a great break!

04:46PM Librarian: You too!

Here, the patron was clearly satisfied with the results offered by the librarian. The librarian, however, did not explain where to find the library catalog, or what they mean when they say the patron should use a subject heading. It is possible the patron is familiar with the operation of the library catalog, but no indication of this was given prior to the librarian’s introduction of the catalog to the conversation. A brief query to establish the patron’s familiarity with the catalog and its features would have been appropriate. It is also worth noting that the librarian did not query for patron satisfaction or invite the patron to chat with any further questions, thus failing to complete the final phase of the interview.

It is not the case that every reference interview will be successful. The fact that 29 of 30 complete reference interviews identified in this study were successful for the
patrons cannot and should not be considered indicative of the overall effectiveness of the reference interview. Sometimes a patron’s information need is not possible to satisfy. The data they need may not exist or be publically available. The subject they intend to delve into may not have been studied widely enough to have a body of work around it. The patron may not have the time or the patience to work through the complete interview. Regardless, the success of the reference interview in this context serves to illustrate a key point.

The reference interview is intended to arrive at a result. That is to say, rarely should a patron come away from a reference interview without at least a clear next step or promise of follow-up. The patron should always be pointed toward another resource, promised further information, or referred to another librarian. An incomplete reference interview, or a reference interaction without an interview, can still be successful, as several of the examples above have demonstrated. The failure points, however, are more numerous. Without clarification, a librarian may misunderstand or not fully comprehend a patron’s information need. Without a clear search process, a patron may not be able to guide in the search in the direction they need. Without follow-up, a patron may not have all their questions resolved.

Within the context of the reference interview, failure to arrive at a result of some kind means not completing some portion of the interview. Whether or not that result entails immediate satisfaction of the patron’s information need, it should occur simply by virtue of the process of the interview. The lack of a result may very well lead to frustrated or dissatisfied patrons.
During the development of this study, it was anticipated that patron frustration with the pace of a given reference interaction would play a significant role in the success or failure of the interaction. This was anticipated due to observations by the researcher during his own reference work. In particular, the study was expected to find some degree of impatience from patrons that might lead to time pressure on the librarians. Interactions containing reference interviews are demonstrably longer than those without. In this study, those chats containing reference interviews averaged 26.2 minutes, while those without averaged only 13.8. Complete interviews averaged 35.9 minutes. It might be expected, then, that patrons might grow impatient with the pace of the interactions, particularly those containing complete interviews. However, demonstrated patron frustration or dissatisfaction was not a clear factor in the success or failure of a large number of the sampled chats.

<table>
<thead>
<tr>
<th>Did the patron express impatience with the interview?</th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>88</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 4

As Table 4 illustrates, in only six of the 102 sampled interactions did the patron clearly express impatience with the interview. Of these six chats, three were unsuccessful, two were successful, and one was not answered.

By and large, both patrons and librarians were studiously polite and enthusiastic across the transcripts. In the unsuccessful chats, frustration did not appear to impact the outcome of the given chat so much as it reflected what was already happening. For instance, in this excerpt of a conversation that had already been in progress for nearly half an hour, the patron appeared exasperated:
10:37AM Librarian: I think so. Just to confirm, is it a specific situation like this one that you're looking into? Sorry for the misunderstanding, I think what I thought was that you were looking for general information on the topic.

10:38AM Patron: Yes, it is a specific situation. It's no problem--I should've given you all the details earlier...

The librarian misunderstood the patron’s request, and as a result the information provided was not relevant to the patron’s stated information need. The frustration the patron exhibited here did not cause further issues between the two parties, but it does serve to demonstrate how successful the reference interaction had been thus far.

The one instance of impatience being informed by time pressure comes from a successful interaction, when it becomes clear to a patron that the librarian will not be able to find anything in relatively short order:

05:20PM Librarian: If you have a few moments, I can keep searching and let you know as I find things

05:22PM Patron: I would love a print reference if we could find one. Specifically, I'm looking at three films with jimmy Stewart, it's a wonderful life (1946), rear window (1954), and man who shot Liberty valance (1962). Could you email me if you find something? [email address]?

05:22PM Librarian: Absolutely! This is a tricky question :)

It is apparent that the patron did wish to remain on the chat while the librarian conducted a thorough search. Instead, the patron requested the answer via email, and the librarian was happy to accommodate. In this instance, the librarian did go on to find what the patron needs before the patron leaves.

These examples illustrate different ways in which patrons might express their sense that an interview has dragged on too long. Contrary to expectations, these expressions did not significantly impact the results of the study. Indeed, they do not even
appear to have significantly impacted the results of the interactions in which they were found.

Much as in the case of impatience, interruptions in the reference interview were expected to play a significant role in the success or failure of the interactions in which they appeared. For the purposes of this study an interruption is an instance in which the librarian ceases the interview in favor of simply providing a patron with results or suggestions. Given that only 30 chats in the sample contained complete reviews, it is clear that this does occur relatively frequently. For the purposes of this study, the resumption of the interview was key.

When a librarian is willing to resume an interview, asking further clarifying questions or attempting to further define a patron’s information need, they demonstrate a willingness to continue the interaction. A librarian who resumes an interview after an interruption is trying to refine an approach, rather than throwing results to the patron until something sticks.

<table>
<thead>
<tr>
<th>If the interview process is interrupted and the librarian is unable to find what the patron is looking for, does the librarian resume the interview?</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If the interview is resumed, does it lead to a successful interaction for the patron?</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 5

In 15 of the 102 chats in the sample, the reference interview process was clearly interrupted, and the librarian was unable to find the information the patron was searching for. In nine of those 15, the librarian resumed the interview in order to more effectively
answer the patron’s query. Of the nine interviews resumed after an interruption, eight resulted in successful interactions for the patrons.

In the next example, the librarian performed a course correction after realizing there may have been a misunderstanding about the patron’s topic:

09:46AM Librarian: I'm looking there now and am seeing some interesting things about Nigerian women and health but most of the ethnographic [sic] studies I am seeing have a sub topic like health
09:46AM Librarian: [link to source]

09:46AM Patron: ok I will look there, thank you

09:47AM Librarian: What is your research paper about?

09:48AM Patron: nigerian women and development

At the beginning of this chat, the patron expressed a need for ethnographies of Nigerian women. The librarian made the assumption, then, that the patron must be interested in health topics. In the text excerpted above, the librarian realized that a misunderstanding had occurred. The patron had not expressed a specific interest in the resources the librarian was pointing towards, and as a result, it was time for the librarian to clarify what topic the patron really needed to address.

This interaction became a success as a direct result of the librarian’s willingness to ask additional clarifying questions. Only once in the sample did a resumption of the interview process result in an unsuccessful interaction for the patron. In that case, the librarian did not carry out a clear and transparent search process. After clarifying the patron’s needs, the librarian provided the following:

10:51AM Librarian: So unfortunately, I haven't been able to find any articles that meet specifically what you're looking for, but what I can do is give you the contact information of the subject librarian for this topic,. I bet she would have some ideas about where to go next.
As discussed above, this is a result of the type that a reference interview at a public service point is intended to provide if a solution does not readily present itself. The librarian, unable to identify results likely to meet the patron’s expressed information need, referred the patron to the relevant subject librarian. This referral was entirely appropriate, particularly given that the librarian has not been able to find any information in response to the patron’s query. However, the fact that no clear and transparent search process was present bears repeating. The patron did not have an opportunity to weigh in on the keywords used or the resources the librarian was searching. Rather than attempting to collaborate with the patron, the librarian simply offered up results.

In concluding interviews, librarians and patrons tended to respond in kind to one another. If a patron thanked the librarian, the librarian was likely to close the chat with some form of relational cue.

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>N</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the librarian close the interview with a relational cue?</td>
<td>68</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>Does the patron express satisfaction with the results of the reference interaction?</td>
<td>73</td>
<td>20</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 6

In 63 of the 68 instances in which librarians offered relational cues to conclude the interview, patrons had first offered an expression of thanks or satisfaction with the services rendered. With the available data, it is impossible to tell when a given participant exited the chat. Therefore, in the instances when a librarian did not offer a relational cue or an interview appeared to conclude abruptly, there is no way of
determining whether this was the result of a participant ceasing to communicate or exiting the chat.
Conclusion

This study was intended to examine the effectiveness of the chat reference interview as implemented at the University of North Carolina – Chapel Hill. Given the success rate of 66% for reference interactions contained within the sample, it is evident that the UNC Libraries’ implementation of the interview is relatively successful compared better than the 55% average Hernon and McClure found in 1986.

The success of the reference interactions here is driven in no small part by the success of completed reference interviews. Those interviews, which contain complete implementations of each of the steps outlined in the RUSA reference guidelines, demonstrated a level of success far greater than interactions with incomplete interviews or no interviews at all. While those interactions with no interviews were more successful than those with partially implemented interviews, the completion of a reference interview proved to be the single best predictor of success.

Future research might address the point at which the reference interview is abandoned by librarians. Given that a partial interview was found to be less successful than no interview, it is worth asking whether the point at which the reference interview ceases to impact the ultimate success or failure of a reference interaction. Dempsey (2016) had found that opening exchanges were important, but this study found that most interactions, whether successful or not, did open with a welcoming relational cue. The course of the rest of the interaction, then, should be investigated further.
As this study was developed, it was anticipated that interruptions of the reference interview and patron impatience would play significant roles in the success or failure of the reference interactions. This was based in part on the anecdotal observations of the researcher during his own work, as well as on brief mentions in the literature. Contrary to these expectations, this study did not find a significant link between impatience or interruptions and the eventual success or failure of any given reference interaction. For the most part, frustrations and pressures were not expressed by either patrons or librarians. Any impact they may have had on the success of an interaction, then, would not have been visible in the chat. Future

Selby (2007) argued that limitations imposed on communication by the medium of chat might limit the effectiveness of the reference interview. The lack of visual and oral cues, in particular, might be expected to impact interactions. While there were misunderstandings between patrons and librarians in the sampled transcripts, the success or failure of any given interaction depended far more on the implementation, or not, of the reference interview as defined by RUSA.

Schwartz (2014) had concluded that the RUSA guidelines for reference interviews might not be fully transferable to the medium of chat. However, this study determined that reference interviews conducted according to those guidelines were far more likely to be successful than those interactions that either did not adhere to the guidelines or implemented them partially. Differences in the lengths of the different types of interactions were readily apparent, with complete interviews lasting much longer than other interactions. Further research might consider the length of time patrons are willing to invest in a virtual reference interaction, and whether modifications might be made to
accelerate the process. Indications of time pressure might be more readily apparent in interviews or interactions with patrons or librarians, rather than content analysis.

The methods of the current study are likely transferable to institutions beyond the University of North Carolina. The findings, however, are dependent to some extent on the staffing practices at a given library. UNC has the ability to staff its service point with students from the School of Library and Information Science, but not every large university possesses this resource. Permanent staffing of the service point with full-time staff has the potential to substantially alter the frequency with which the complete reference interview is or is not implemented. Training varies, depending on the student or staff status of the employee operating the chat service at any given time, and further work might take into account that status.

As utilized by the chat service run by the libraries at UNC – Chapel Hill, the reference interview is largely successful. Not every interview is guaranteed to conclude with the satisfaction of the patron’s information need, but for the most part the librarians demonstrate curiosity and a clear willingness to assist the patrons with whom they are working. The primary issue is the use, or not, of the complete reference interview, which demonstrates a remarkable success rate in the sample studied here.
References


Appendix A: IRB Approval Letter

To: Ian Moore  
School of Information and Library Science

From: Non-Biomedical IRB

Approval Date: 1/26/2017  
Expiration Date of Approval: 1/25/2018  
RE: Notice of IRB Approval by Expedited Review (under 45 CFR 46.110)  
Submission Type: Initial  
Expedited Category: 5.Existing or non-research data  
Study #: 17-0014

Study Title: An Examination of the Chat Reference Interview

This submission has been approved by the IRB for the period indicated. It has been determined that the risk involved in this research is no more than minimal.

Study Description:

Purpose: To examine the use and effectiveness of the reference interview in the context of a virtual (or chat) library reference service.

Participants: Data will be collected from pre-existing chat transcripts.

Procedures (methods): A qualitative examination of chat transcripts collected from the chat reference service run by the University of North Carolina at Chapel Hill Libraries

Regulatory and other findings:

The IRB has determined that the study-specific rationale provided by the investigator is sufficient to justify the waiver of informed consent according to 45 CFR 46.116(d).

Investigator’s Responsibilities:

Federal regulations require that all research be reviewed at least annually. It is the Principal Investigator’s responsibility to submit for renewal and obtain approval before the expiration date. You may not continue any research activity beyond the expiration date without IRB approval. Failure to receive approval for continuation before the expiration date will result in automatic termination of the approval for this study on the
expiration date.


You are required to obtain IRB approval for any changes to any aspect of this study before they can be implemented. Any unanticipated problem involving risks to subjects or others (including adverse events reportable under UNC-Chapel Hill policy) should be reported to the IRB using the web portal at [http://irbis.unc.edu](http://irbis.unc.edu).

Please be aware that additional approvals may still be required from other relevant authorities or "gatekeepers" (e.g., school principals, facility directors, custodians of records).

The current data security level determination is Level II. Any changes in the data security level need to be discussed with the relevant IT official. If data security level II and III, consult with your IT official to develop a data security plan. Data security is ultimately the responsibility of the Principal Investigator.

This study was reviewed in accordance with federal regulations governing human subjects research, including those found at 45 CFR 46 (Common Rule), 45 CFR 164 (HIPAA), 21 CFR 50 & 56 (FDA), and 40 CFR 26 (EPA), where applicable.

CC: Casey Rawson, School of Information and Library ScienceIRB Informational Message - please do not use email REPLY to this address