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Introduction to past and present staffing model

Our overarching goal for this project was to determine if the current virtual reference staffing model is working. Our data sets were structured around the removal of the reference desk in late June of 2012, which was accompanied by a change in the staffing model for chat reference. To understand the repercussions of this change, it was crucial to understand the differences between the staffing models.

In 2011-2012 data set, only those librarians or staff members who sat at the reference desk served as chat operators. These chat operators logged in primarily through the queues hagerty and hagertynew.

In 2012-2013 data set, the reference desk had been removed. There was a new queue created in LibraryH3lp, titled hagertylibraryassistance. This queue was operated primarily by the Library Assistance team (LAS) that operate at the circulation desk. These staff members provide chat service Monday-Friday from 12-5 pm. During the morning hours between 9 am and 12 pm, staff members at Hahnemann Library operate chat through the hagertylibraryassistance queue.

Also new to the staffing model after the removal of the reference desk was the increase in chat transfers between LAS and liaison librarians. The LAS team was instructed to transfer to liaisons any chat questions requiring research assistance or those questions that they are unable to answer.

Please note that there are many queues, and detailed information on the different queues in LibraryH3lp and various access points to reach chat are quite complex. Please consult a liaison librarian for further information on these points of chat operation.

LibraryH3lp Reports / Overview of the Data

Data was divided into two sets - June 2011-June 2012 and July 2012- March 2013. The first data set picks up where the previous Virtual Reference Analysis left off and extends through the removal of the reference desk in June 2012, covering 13 months. The second data set begins in the first full month after the reference desk was removed and ends just before this VRA project began, covering 9 months.

We realized that the data sets are two different sizes which is not an ideal situation. We were concerned with incorporating as much data as we could to highlight any positive or negative findings on the current staffing model. Because the different lengths of the data sets presented some difficulty in comparing raw data, we expressed many of our findings in percentages to facilitate comparison.
Among the data LibraryH3lp records are the number of chat interactions that occur in a given time period. During the June 2011 – June 2012 period, a total of 4677 chats took place. During the July 2012 – March 2013 period, a total of 2,752 chats took place. Before approaching qualitative analysis of chat transcripts, we looked at some quantitative data generated with the reports from LibraryH3lp. These data points include all questions presented in the time periods we examined.

**Chats per hour**

We decided to look at chats per hour to see if there were patterns that indicated certain times that received higher chat traffic than others. The data for chats per hour was generated by LibraryH3lp and includes both answered and unanswered questions. To make the data easier to digest, we grouped the hourly data into times of day. We found that the afternoon (12-5pm) receives the largest proportion of chat traffic and this has remained stable over the past two years.

![Chats per time of day](image)

<table>
<thead>
<tr>
<th>Time Period</th>
<th>2011-2012</th>
<th>2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning (9am - 12pm)</td>
<td>864</td>
<td>478</td>
</tr>
<tr>
<td>Afternoon (12pm - 5 pm)</td>
<td>2135</td>
<td>1129</td>
</tr>
<tr>
<td>Night (5 pm - 10 pm)</td>
<td>1205</td>
<td>665</td>
</tr>
</tbody>
</table>
Chats by queue

In the 2011-2012 data set, 87% of chats were answered by an operator in the hagerty or hagertynew queue. These queues included liaison librarians, the hagertyevewknd operator, and other staff from Library Assistance that were stationed at the reference desk.

We can draw a few conclusions from examining the distribution of chats across queues in 2011-2012. At that time, chat buttons on research guides directed to their own queues. We see that the chat buttons on these pages have been used very infrequently. It is likely that patrons are unaware of this feature. This could present a marketing opportunity. We also see that textadrexellibrarian and AIM have received very little traffic. It may be worthwhile to reevaluate these services.

The detailed tables below display the raw data for traffic in each queue, covering both data sets. Because the queue structure changed between data sets, the data is displayed in separate tables. The hagertylibraryassistance queue, which fielded 74% of chat questions, is new for 2012-2013. This queue is staffed by LAS operators at the circulation desk, the hagertyevewknd operator, and librarians at Hahnemann who log in to the LAS queue in the morning hours.

In the 2012-2013 data set, chats initiated through the Summon interface appeared in the liaisons queue, and no chats appeared through the textadrexellibrarian queue. The continued underuse of the research guide queues in the second data set indicates that students may not be aware of this service option, or that the staffing model could be examined.
### Chats per Queue, 2011-2012

<table>
<thead>
<tr>
<th>Queue</th>
<th>Chats</th>
</tr>
</thead>
<tbody>
<tr>
<td>hagertynew</td>
<td>2660</td>
</tr>
<tr>
<td>hahnemannhsl</td>
<td>358</td>
</tr>
<tr>
<td>hagerty</td>
<td>220</td>
</tr>
<tr>
<td>earlemacklaw</td>
<td>52</td>
</tr>
<tr>
<td>textadrexellibrarian</td>
<td>16</td>
</tr>
<tr>
<td>drexelarchives</td>
<td>3</td>
</tr>
<tr>
<td>infoscieducation</td>
<td>3</td>
</tr>
<tr>
<td>careers</td>
<td>3</td>
</tr>
<tr>
<td>humanitiessocsci</td>
<td>2</td>
</tr>
<tr>
<td>drexelengineering</td>
<td>2</td>
</tr>
<tr>
<td>mathscience</td>
<td>1</td>
</tr>
</tbody>
</table>

### Chats per Queue, 2012-2013

<table>
<thead>
<tr>
<th>Queue</th>
<th>Chats</th>
</tr>
</thead>
<tbody>
<tr>
<td>hagertylibraryassistance</td>
<td>1564</td>
</tr>
<tr>
<td>hagertynew</td>
<td>217</td>
</tr>
<tr>
<td>hahnemannhsl</td>
<td>183</td>
</tr>
<tr>
<td>liaisons</td>
<td>66</td>
</tr>
<tr>
<td>hagerty</td>
<td>63</td>
</tr>
<tr>
<td>earlemacklaw</td>
<td>19</td>
</tr>
<tr>
<td>infoscieducation</td>
<td>3</td>
</tr>
<tr>
<td>drexelengineering</td>
<td>2</td>
</tr>
</tbody>
</table>
Total number of transfers

Information about the total number of transfers would have provided valuable insight into the new staffing model. Unfortunately, we were unable to determine the total number of transfers that occurred in the 2012-2013 data set. The LibraryH3lp metadata for each chat transaction does not record whether the chat was transferred (indicated by a change in the operator name). We were able to identify transfers only by reading the transcripts and noting a change in operator as well as noting the dialogue which indicated a transfer was happening. Determining the total number of transfers would have required reading every transcript. This would have been very time consuming and was out of the scope of our project. Further examination of transfers may be helpful in future analysis projects.

After our presentation on findings to the library staff, the IT department mentioned that there might be a possibility to write a code to distinguish transfers based on whether or not there was a change in operator name. Future conversation with IT on this process may prove worthwhile.

Random Sample

Because thousands of chats had taken place in the two year period we examined, we decided to analyze a random sample of chats. We felt that a random sample of 25% would provide a good representation of the whole while remaining manageable for our project.

During the 2011-2012 period, a total of 4677 chats took place. Of this, we examined a random sample of 25%, which came to 1168 chats. We threw out 195 chats between library staff and 118 unanswered questions. That left us with 833 questions to analyze.

During the 2012-2013 period, a total of 2,752 chats took place. Of this, we examined a random sample of 25%, which came to 688. We threw out 91 chats between library staff and 69 unanswered questions. That left 528 questions to analyze.
Unanswered Questions
by time

We decided to look at unanswered questions to see if there are patterns that reveal something about the past and current staffing models.

<table>
<thead>
<tr>
<th>Unanswered Questions by Time of Day</th>
<th>2011-2012</th>
<th>2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning (9-12)</td>
<td>23</td>
<td>11</td>
</tr>
<tr>
<td>Afternoon (12-5)</td>
<td>38</td>
<td>33</td>
</tr>
<tr>
<td>Night (5-10)</td>
<td>45</td>
<td>19</td>
</tr>
<tr>
<td>Outside regular hours</td>
<td>12</td>
<td>5</td>
</tr>
</tbody>
</table>

Unanswered questions sometimes occur outside of regular chat hours. This led us to the recommendation that posting chat hours on the website might be useful. We also felt it may be helpful to remind staff to log off chat before leaving for the night.
The highest proportions of unanswered questions fall within the afternoon time period in both data sets. This may be due to two reasons:

1. This is the time during the day when Drexel Libraries receive the most chats.
2. In the 2012-2013 data set, the staffing of virtual chat was moved to the circulation desk, which is typically quite busy from 12-5. Those responsible for operating chat may have been tied up with in-person questions during this time, presenting a challenge for staffing the circulation desk and operating chat simultaneously.

by queue

We also examined unanswered questions to see which queues they occur in most frequently.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>hagerty</td>
<td>hagerty</td>
</tr>
<tr>
<td>8</td>
<td>15%</td>
</tr>
<tr>
<td>hagertynew</td>
<td>hagertynew</td>
</tr>
<tr>
<td>77</td>
<td>70%</td>
</tr>
</tbody>
</table>
In the 2011-2012 data set, the queues were set up in a way that did not clearly indicate the groups responsible for each queue, so it is difficult to make generalizations about the possible reasons for the large proportion of unanswered questions in the hagertynew queue. While the operator is not specified for the majority of unanswered questions, we can make certain observations about the operators that tend to staff the hagertynew queue. The hagertynew queue is staffed by liaison librarians and the hagertyevewknd operator. During the 2011-2012 time period, both liaison and hagertyevewknd operators staffed chat from behind the reference desk. Possible reasons for questions in this queue going unanswered could include the operators serving in-person patrons at the desk.

In the 2012-2013 data set, the majority of unanswered questions were received in the hagertylibraryassistance queue. This queue is staffed by LAS operators, hagertyevewknd, and librarians at Hahnemann who log in to the LAS queue in the morning hours. In the current model, the LAS operators staff chat reference at the circulation desk. It is possible that the proportion of unanswered questions in this queue is indicative of challenges inherent in fielding chat reference at an in-person service point.

<table>
<thead>
<tr>
<th>Queue</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>hahnemannhsl</td>
<td>27</td>
</tr>
<tr>
<td>earlmacklaw</td>
<td>5</td>
</tr>
<tr>
<td>textadrexellibrarian</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unanswered Questions by Queue, 2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>drexelbusiness</td>
</tr>
<tr>
<td>hagerty</td>
</tr>
<tr>
<td>hagertynew</td>
</tr>
<tr>
<td>hagertylibraryassistance</td>
</tr>
<tr>
<td>hahnemannhsl</td>
</tr>
<tr>
<td>liaisons</td>
</tr>
</tbody>
</table>
Qualitative Analysis

Chats by category

We downloaded each transcript, reviewing its content. We developed the following categories to group the transcripts based on the subject matter:

Policy/Hours/Access -
How long can I check out books?
Access policies?
What time is the library open until?
Laptop rentals?
Reserving Rooms.
ILL.
Course Reserves.
Print/fax/scan

Way finding/ known item -
Where is the PQ section?
Do you have book x?
I need to locate article X.
How do I reach X database?

Technical Issues/ troubleshooting/ eresources -
Having trouble connecting to the database
Why isn’t ebook working?
Problems with refworks

Ready Reference -
Questions regarding citation help
Questions asking how to tell is an article is scholarly

**Miscellaneous**

Other questions outside the scope of our categories

complaints about noise level and facilities

Non Library questions

**Research**

Research assistance, where to find resources, help with search terms and forming queries

What we are noting:

The general subject area

How it was resolved; search strategy, referral, catalog, database, ILL, research guide, other (free library, museum, penn library), asked patron to visit

![Chats by category](chart.png)
<table>
<thead>
<tr>
<th>Question Types</th>
<th>2011-2012</th>
<th>2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known Item</td>
<td>208</td>
<td>136</td>
</tr>
<tr>
<td>Misc</td>
<td>44</td>
<td>35</td>
</tr>
<tr>
<td>Policy/Access</td>
<td>206</td>
<td>116</td>
</tr>
<tr>
<td>Ready Reference</td>
<td>90</td>
<td>62</td>
</tr>
<tr>
<td>Research</td>
<td>190</td>
<td>122</td>
</tr>
<tr>
<td>Tech</td>
<td>95</td>
<td>56</td>
</tr>
</tbody>
</table>

**Research Question Subjects**

In order to determine what chat patrons were asking we looked at each of the research questions by subject. Below is a table of subjects asked in research questions. The top three subjects in descending order are Medical, Business, and Education.

<table>
<thead>
<tr>
<th>Subject</th>
<th>2011-2012</th>
<th>2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>Careers</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Education</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Engineering</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Humanities - English / Lit, History</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Law</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>COMAD - Arts, Communications, Fashion, Interior</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Field</td>
<td>64</td>
<td>37</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>Medical</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>Info Science &amp; Technology (LIS, Computers)</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Psychology</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Sociology / Anthropology</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>Science</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Sports Management</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>How to get more help / How to do research</td>
<td>11</td>
<td>8</td>
</tr>
</tbody>
</table>

**READ Scale**

1. Directional; no consultation of resources; requires no specialized knowledge or expertise
   - What are the library hours? Where are the printers/restrooms/scanners?
2. Informational; requires only minimal specific knowledge; nominal resource consultation
   - Using the catalog to find call numbers; providing library policy information; troubleshooting printing problems
3. Reference knowledge & skills come into play; consultation of ready reference materials; minimal instruction in catalog, databases, etc.
   - Searching for a topic in the catalog; help with remote access to databases
4. Reference exchange is more supportive of user & more instruction-based; multiple resources consulted; consultation of subject specialists may be needed.
   - Complex searches in the online catalog, databases, and web; cross referencing resources; help with ILL
5. Extensive user instruction; subject specialists need to be consulted; research consultations w/user may be scheduled; “back and forth” dimension to reference dialogue; multiple resources consulted
   - Interdisciplinary consultations; question development assistance with graduate-level research
6. Very extensive user instruction; inquiries can’t be answered on the spot; primary and secondary resources may be used; covers “special library” type research services
   - Assistance with in-depth PhD or faculty research; collaborative and ongoing research
Halfway through the project we were introduced to the READ scale. The READ scale is a way of assessing reference transactions with patrons. We did try to implement the scale by starting to code those transcripts which we marked as research. What we found was that coding such these transcripts was very time consuming. For example, we had difficulty deciphering the content of the transcript in regards to the scale. We spent much time debating whether a question was a 3 or a 4.

Additionally, many of the transcripts appear to be cut off or dropped. Since we took a random sample we were unable to tell if the transaction continued as we did not have sequential access to each transcript. Some transcripts also resulted in the staff or librarian recommending that they move the transaction to the phone. Once again we were unable to indicate the depth of the reference transaction.

We recommend that this scale be used to code chat transcripts for future virtual reference analysis projects. It may be helpful to develop an internal example using past chat transactions. These transactions can serve as a guide for coding the chat transcripts. Since there were two of us trying to implement the scale we had different interpretations and internal examples can provide a more unified approach.

We drafted preliminary guidelines for applying the READ scale; these are found in a separate document.

For more information on the READ scale, visit: http://readscale.org/read-scale.html

**Transfers**

Corresponding to the change in the staffing model that accompanied the removal of the reference desk is an increase in the amount of chat reference questions which are transferred to a liaison librarian.

In the 2012-2013 data set, our random sample included 42 questions which were transferred from LAS to a liaison librarian. The majority of these questions were about research help

<table>
<thead>
<tr>
<th>Transfer Question Topics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>30</td>
</tr>
<tr>
<td>Ready Reference</td>
<td>5</td>
</tr>
<tr>
<td>Known Item</td>
<td>4</td>
</tr>
<tr>
<td>Tech Issue</td>
<td>3</td>
</tr>
</tbody>
</table>

**Wait Times**

One of the questions raised before embarking on the project was how long are patrons waiting until their chat questions are being acknowledged. Through the time stamp available in each transcript we were able to tell the approximate time the patron was waiting. Below are the categories of times.
<table>
<thead>
<tr>
<th>Wait Times (in seconds)</th>
<th>2011-2012</th>
<th>2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td>516</td>
<td>259</td>
</tr>
<tr>
<td>31-60</td>
<td>142</td>
<td>120</td>
</tr>
<tr>
<td>61-120</td>
<td>88</td>
<td>69</td>
</tr>
<tr>
<td>120+</td>
<td>85</td>
<td>80</td>
</tr>
</tbody>
</table>

In the 2011-2012 data set 62% of the questions were acknowledged in 0-30 seconds. However, in the second data set we found only 49% of the questions were acknowledged in 0-30 seconds with increased distribution in the 31 seconds and above categories. Overall it appears that patrons had to wait longer in the second data set to have their questions acknowledged.

**Duration**

Another question raised before embarking on the project was to determine the duration of the chats taking place. Due to the metadata that was attached to each transcript we were able to decipher the duration of all of the chats in the random sample.
Overall, the duration of chat appears to be getting longer. There are three reasons why this may be happening.

- There may be chats that are comprised of students asking research questions and receiving full responses.
- Chats are taking longer to be acknowledged therefore increasing the duration.
- There might be a greater lull time in between staff responses to students or vice versa.

This leads us into bad examples of chat we have witnessed.

The bad

For this portion of the report we did not employ statistical or quantitative measurements. In the presentation we did not wish to highlight only negative findings. Below are some observations or frequent attributes we found in chat that can be improved.

There were recurring issues we discovered in the chat transcripts that we coded. As mentioned previously, there were several situations where the chats were either unanswered or not acknowledged until the patron had presumably left the chat.

Additionally we noticed several instances in which a considerable lag occurred in the middle of a chat. For example, we viewed a handful of transcripts which began at a reasonable pace, but were interrupted by the librarian or staff member typing something like “one sec” and not returning to the
conversation for 10-12 minutes. The staff member may also be busy with an in-person transaction, however, the chat patron may not be aware of this. Regularly checking in every three minutes or so would be more appropriate; the patron would be aware that the staff member is still present and attending to their questions.

Other common issues included posting a wall of citations as a response to students looking for particular articles. Dense blocks of text can be overwhelming, and may deter the patron from using chat or add anxiety or intimidation to their library experience. We felt that this practice missed opportunities to identify teachable moments and coach a patron through the research process.

We were surprised to witness more instances of providing students with articles or answers to their questions rather than guiding or directing students to find them. While providing directional instruction remotely for students can be challenging, a greater effort should be made to empower students by using virtual reference to educate rather than just provide.

As an aside, we noticed an inconsistency of chat availability. While we were working on the chat reference analysis, on several occasions we observed that the chat box on the main site was unavailable at times that it should have been available. We did not mark down the amount or exact time of day the inconsistency happened yet it seemed to occur more during the weekday morning hours of 9:00-11:00.

Please see the appendix for those chats we feel could use improvement.

The good

There were several transcripts illustrating the best practices of identifying teachable moments and providing coaching, scaffolding, and thorough explanations of services. We also found several chats in which the patron appeared to be extremely satisfied with the service. Please see the appendix for sample transcripts of chats we felt were exemplary.

Questions Raised at Presentation

Some questions raised at our Spark! presentation regard functionalities of LibraryH3lp.

Can we have a list of premade responses to common questions?

There is not currently an option to integrate premade responses into the LibraryH3lp web client we are using. Instead, LibraryH3lp recommends few workarounds, including a Firefox plugin and Profile Pages, which are equivalent to a knowledge base staff can consult, cutting and pasting the appropriate response into the chat widget. LibraryH3lp reports that an integrated premade response feature is in development.
Can we include a post-chat survey to gauge student satisfaction?

Because LibraryH3lp runs as a widget, they do not provide an integrated post-chat survey, which they feel may disrupt the patron by appearing automatically, displacing the transcript text which the patron may still be using. This feature does not appear to be in development at this time. As an alternative to the chat operator sending a link to a patron satisfaction survey (hosted on Qualtrics or another system), LibraryH3lp recommends embedding a link to the survey in a banner on the chat widget, as discussed in a blog post.

Is there capability for split screen / co-browsing?

The LibraryH3lp chat widget platform does not currently support cobrowsing. This feature is not in development; LibraryH3lp expressed that the dynamic, evolving nature of browsers and issues with compatibility prevent this feature from success. Third-party screen sharing solutions, such as ScreenLeap, could be an option for some situations.

Is there capability to send files/images through chat?

LibraryH3lp provides a feature that allows librarians to send files up to 20 MB to chat patrons, a delivery system which can be faster and more convenient than email. Information about this feature can be found in the LibraryH3lp documentation.

How do the features of Adobe Connect compare with LibraryH3lp?

Adobe Connect does not appear to host a comparable chat platform. Adobe LiveCycle can be used to support co-browsing; however, Connect does not appear to feature co-browsing at this time. Other chat platforms that may be worth investigating include Velaro and QuestionPoint, both of which support co-browsing and pre-made responses.

Other staff concerns regarded patterns in wait times and unanswered questions.

Regarding questions that do not receive an answer or have a long wait before the initial response - are these occurring on the hour?

Of the 118 unanswered questions in the data set covering 2011-2012, 25 (21%) occurred within five minutes of the top of the hour. Of the 68 unanswered questions in the data set covering 2012-2013, 21 (30%) occurred within five minutes of the top of the hour.

In our random sample for the 2011-2012 data set, 173 questions had a wait time of more than one minute. Of these, 27 (15%) occurred with five minutes of the top of the hour, with 4 taking place in the morning, between the hours of 9:00 and 12:00, 13 between 12:00 and 5:00, and 10 between 5:00 and 10:00.

In the 2012-2013 random sample, 149 chats had wait times longer than one minute, with 27 (18%) of these occurring within five minutes of the top of the hour. Of these 27 chats, 14 took place in the
morning, between the hours of 9:00 and 12:00, 7 occurred between 12:00 and 5:00, and 6 between 5:00 and 10:00.

This could indicate an opportunity to smooth the transition between chat operators at the top of each hour, and/or that this may be a particularly busy portion of each hour both at the desk and on chat.

Has there been a pattern of long waits or drops in transfer questions?

Of the 42 transfer questions in the 2012-13 sample, the wait times are generally consistent with the overall 2012-13 data set. The durations of transferred chats appear to be somewhat longer than non-transferred chats, as is to be expected. There is potential to revisit each transcript to look for excessive internal wait times. We recommend that this is noted as part of the initial review process in future projects.

**Recommendations**

**How to handle the project:**

- Document the procedures as you go along. We spent a great deal of time trying to download the transcripts and connect each transcript to its metadata. Since we were so consumed with collecting the data we forgot to write down how we actually collected it. We have created a procedures document for future interns which may help cut down on the time they might spend on this portion of the project.

- Hire two interns to work on the project. As there were so many moving parts, it was helpful to work together to make sure we covered many of the outputs assigned to us. Having two interns also made it easier to code more transcripts, which was more helpful to the project since it serves as a representation of chat reference.

- Present a summary of project to stakeholders near the beginning of the project. During a Friday staff meeting we were asked to present our findings to the librarians to highlight what we were working on. The meeting was successful and addressed various ways we could look at the data (i.e. in more quantitative ways). We tried to incorporate these suggestions but realized that we did not have enough time and it was out of the scope of our project.

**How to handle the data:**

- There is potential to do statistical analysis on comparing chat statistics to university-wide data such as student enrollment or number of sections in English 101. Future interns may want to focus on the quantitative side rather than focusing on the qualitative side which is what we did.
In addition to your own classification system (or the one created for this project), use the READ scale to code transcripts. A standardized classification system facilitates comparison of raw data. For more information on the READ scale: [http://readscale.org/read-scale.html](http://readscale.org/read-scale.html)

Comparison of chat statistics from Libraryh3lp with Library Assistance statistics could be helpful to determine if Library Assistance needs to continue recording chat statistics. LAS use a paper form to record statistics for every reference transaction encountered at the circulation desk (both in-person and virtual). We were asked to explore this comparison to see relying solely on Libraryh3lp reports for virtual reference would provide ample information and streamline the LAS workload. Unfortunately we were not invited to view the paper-based statistics when we spoke with LAS staff member.

Partner with the library’s IT department to collect data about chat transfers. Developing a program to extract chat transcripts with a change in operators will accomplish this.

**Best practices for chat:**

- Implement a standard for handling reference questions as well as unified training for all staff that answer chat questions. Standardizing procedures will encourage consistent levels of service and facilitate quality control. Each operator has a unique approach to virtual reference. We believe that the best service is personalized to the patron’s needs, and that making a human connection via chat promotes positive attitudes about the library and about education in general. However, providing consistent service is vital to promote an image of the library as a reliable source of high-quality research assistance.

- Create guidelines for handling transfers. To our understanding, the Library Assistance staff are directed to transfer any chats that involve research assistance or questions they cannot answer to the library liaisons. From the 42 transfers we examined in the 2012-2013 random sample, it appeared overall that this model is functioning. However, we noticed wide variations in the reference interviews. While some asked questions to determine the patron’s information needs, others sent the student directly to a librarian right after they typed what they were looking for. Overall, transferring seems like a bit of a gray area and has the potential for more structure. To streamline the LAS workflow, it may be useful to designating a certain time limit for the chat to be served by LAS (i.e. if the chat goes over 10 minutes, transfer to librarian). We also recommend clearly communicating to patrons that they are being transferred to a librarian.

- Appoint a coordinator to handle chat reference. It appears that there is no one person responsible for chat. It would be helpful to have a point person for chat reference questions and scheduling as well as someone to employ standards. This coordinator position can also come in handy for monitoring the chat availability button on the library website and determining if the unavailability is due to staffing or technical issues.
Logistics:

- Display chat hours on the library website. When staff is not signed into chat, the chat button simply states that the chat is unavailable without giving information on the hours of operation. It would be helpful to have those hours listed so patrons can be advised of when they can use this service.

- Use a post-chat survey to gauge student satisfaction. Utilizing a post-chat survey would add more depth to the data for this project. It would be helpful to find student opinions of the service and explore the likelihood of them using it in the future. Because LibraryH3lp does not provide a post-chat survey feature, we recommend that chat operators send a standardized script thanking patrons, with a link inviting them to fill out a Qualtrics survey at the end of each chat.

- Consider marketing or discarding the chat queues that are being least used: AIM & Text-a-Librarian. When reviewing quantitative reports in LibraryH3lp, we noticed that these queues were rarely being used. This raises the question: are students not using them because they do not want to, or because they do not know they exist? While we are not sure if there are any consequences to keeping these underutilized queues, we feel that offering fewer access points for chats may create a more centralized approach.

- Both Hahnemann and Hagerty should sign into chat from the hours of 9am-12pm. This will lighten the workload for both operators and help ensure consistent operation of chat during weekday mornings.

Arrangement of chat at circulation desk

We want to conclude with a comment about the current setup of chat at the circulation desk. As mentioned throughout the report, the library assistance staff is responsible for staffing chat at the circulation desk between the hours of 12-5. In the photograph below, the computers on the far left are those that are equipped with chat. From a customer service point of view, this setup is not practical.

In a hypothetical scenario, the patron approaches the circulation desk and faces the staff member who is positioned in front of a computer screen, potentially operating chat. From the patron’s viewpoint, it seems that the staff is ignoring them. Student workers are generally available at the other computer stations to assist those in line. Yet they are not directly facing the patron approaching the desk. Because the student workers are positioned to one side, they may be easily missed.

The staff member may also feel uncomfortable in this scenario, as they want to help the patron waiting in line for assistance. If the staff member is in the midst of providing chat reference, they may not acknowledge the patron at the desk. Or, if the staff member is suddenly approached by the patron, they may try to simultaneously accommodate both the in-person patron and the remote patron on chat.
This setup is not ideal for any of the parties involved. The in-person patron may feel ignored or receive rushed service, the chat patron may have to wait or may receive low-quality service, and the LAS staff member may feel unnecessary stress and pressure. On a personal note, neither of us have noticed a sign indicating that the staff member is busy with chat. Perhaps a larger sign would be more helpful to communicate this. Ideally, moving the chat reference computers away from the circulation desk could be most helpful, alleviating the tensions caused by the encounter described above, and promoting better service for both in-person and virtual library patrons.
Appendices

APPENDIX 1 - Original Questions

Virtual Reference Analysis Project 2013

**Goal:** Review chat statistics and transcripts in order to make generalizations about, and gather understanding of, chat traffic, including needs and opportunities for improvement.

Questions to answer (not exhaustive):

- Does it appear our staffing model makes sense? Is the current staff model working?
- Are we able to answer IM questions in a reasonable turnaround time? (define reasonable)
- Are patrons having to wait?
- What kinds of things are people choosing to ask us via IM?
- Are there website items/learning objectives that could address some of the major questions we receive?
- Is there apparent value in exploring a question/answer database?
- Are there patrons who never get an answer? Does this happen more often with one queue than another? More during a certain time of day?
- Does it make sense to continue manually tracking IM stats, or should we allow the system to track them?
- What is health sciences traffic like? Does it make sense to share it?

**Outputs:**

- Hourly data indicating traffic on major queues (LAS; HSL; Liasions)
- Data covering number of transfers from LAS to Liasions
- Types of questions being asked [likely will need to update classification system for qualitative analysis]
- Detailed report accounting for findings, implications, recommendations
- Presentation to staff of work completed toward end of internship
- Comparisons of statistics from Libraryh3lp to the LAS ref stats
Appendix 2 - Chat with Libraryh3lp about functionality
17:34 30622661241370885618587234@libraryh3lp.com Hi, would you be able to help with a few questions about different LibraryH3lp features?
17:35 libraryh3lp-support@chat.libraryh3lp.com Hi there
17:35 libraryh3lp-support@chat.libraryh3lp.com Sure thing, this is Pam
17:35 30622661241370885618587234@libraryh3lp.com Hi Pam!
17:35 30622661241370885618587234@libraryh3lp.com Is there a way to write some premade responses that staff can supply to answer common questions?
17:36 libraryh3lp-support@chat.libraryh3lp.com In many cases, yes. It really depends on what software is being used to staff the system (there are numerous options).
17:36 libraryh3lp-support@chat.libraryh3lp.com By chance are folks using our native web client?
17:37 libraryh3lp-support@chat.libraryh3lp.com (versus something like Pidgin)
17:37 30622661241370885618587234@libraryh3lp.com I believe we are using both at this time
17:37 libraryh3lp-support@chat.libraryh3lp.com OK cool. Let me see if I have this written up in a doc. If not, I'll summarize.
17:37 libraryh3lp-support@chat.libraryh3lp.com One sec?
17:39 libraryh3lp-support@chat.libraryh3lp.com OK, here you go: http://ask.libraryh3lp.com/questions/3010
17:39 30622661241370885618587234@libraryh3lp.com Great, thanks, I am looking into this page now . . .
17:40 libraryh3lp-support@chat.libraryh3lp.com OK great, let me know of questions
17:41 30622661241370885618587234@libraryh3lp.com Hi, Pam?
17:41 libraryh3lp-support@chat.libraryh3lp.com Hi! I think I was disconnected - sorry
17:41 libraryh3lp-support@chat.libraryh3lp.com no worries
17:41 30622661241370885618587234@libraryh3lp.com I see that I can use third party software for a canned response - thank you
17:42 libraryh3lp-support@chat.libraryh3lp.com Yes. And in our web client, you can use Profile Pages to do a similar job -- but staff will need to copy/paste.
17:42 30622661241370885618587234@libraryh3lp.com is an integrated pre-made response feature on the horizon?
17:43 libraryh3lp-support@chat.libraryh3lp.com Yes, it's in our list of features for development in our webchat client.
17:43 libraryh3lp-support@chat.libraryh3lp.com Of course, we can't do much for other clients.
17:44 30622661241370885618587234@libraryh3lp.com yes, thanks. I am also interested in the possibility of a co-browsing function through the libraryh3lp web client
is this something possible now, or slated for future development?

And, since browsers change so much, it is hard to provide that kind of co-browsing very reliably, so we most likely won't develop it. BUT...

if the goal is to provide a more cohesive patron experience, our pop up and follow-me widgets are pretty good at that

both let the patron chat and browse without disrupting the chat

But, I do realize this is not the same as co-browsing; I used co-browsing a lot in the past as a librarian at UNC-Chapel Hill (in pre-LibraryH3lp days).

Using a screen sharing program along side the widget would be possible (this would be a third-party solution)

ok thanks

just one more -

does libraryh3lp provide a post-chat survey that we can append that the close of a chat to gauge patron satisfaction, or is this something we would do by supplying a link to a third party survey hosting software

We have ways to integrate surveys -- it may be a bit different than how other systems do it. Let me explain.

Since the "end" of a widget-based chat can be fuzzy (we know that patrons often leave the chat widget open long after the librarian thinks the chat is over, so they can refer to it later), a post-chat survey can be disruptive.

Of course, librarians can send them in a link if desired. BUT what we like and what works well is to integrate a link to the survey into the widget itself.

Such as through a nice, large banner or styled block of text at the top of the widget.

That way, the patron can access the survey whenever they choose. We have a blog post about how one library did this. Let me find that...


So if you scroll down towards the bottom, you can see styled text examples.

You could also make an image to advertise your survey, and clicking the image would take the user to it. Like this: https://docs.libraryh3lp.com/widget-branding-banner

ok, thanks for sharing those options

Sure thing
17:56 30622661241370885618587234@libraryh3lp.com i actually have one more question

17:56 libraryh3lp-support@chat.libraryh3lp.com :)

17:57 30622661241370885618587234@libraryh3lp.com we noticed while reading transcripts that there is not an indication of how the chat ended (ie, who exited first). however, this appears in the widget while the chat is active. is there a way to have transcripts stamped with who exited first? does this currently exist, is it in development, or is it not currently an option?

17:59 libraryh3lp-support@chat.libraryh3lp.com Good question. Chats can end in a few ways: patron can navigate away, operator can close their window (this actually varies by client software), and by timeout. If a chat ends by timeout, the end time and chat duration are still ultimately derived from the time of the last message sent during the chat.

18:00 libraryh3lp-support@chat.libraryh3lp.com I think you're the first person we've had express an interest in knowing how the chats ended. That data would be possible to capture and expose in the admin user interface, although it hasn't been on the horizon.

18:01 30622661241370885618587234@libraryh3lp.com is that something possible on my side of the admin interface, or would that rely on data not currently collected/provided?

18:01 libraryh3lp-support@chat.libraryh3lp.com Oh, sorry. I meant it would be technically possible for our developers to capture that and then make it accessible via the admin site in the future.

18:01 libraryh3lp-support@chat.libraryh3lp.com It's not something that's gathered now -- actually it is, but the logs it goes into only last for a few hours.

18:02 libraryh3lp-support@chat.libraryh3lp.com So a lot of changes would be needed to expose it. But it is technically possible.

18:02 30622661241370885618587234@libraryh3lp.com ok thanks

18:02 30622661241370885618587234@libraryh3lp.com those are all the functionality questions i have right now

18:02 30622661241370885618587234@libraryh3lp.com thanks for your help!

18:02 libraryh3lp-support@chat.libraryh3lp.com you're most welcome!

18:03 libraryh3lp-support@chat.libraryh3lp.com enjoy the rest of your day

18:03 30622661241370885618587234@libraryh3lp.com you too =)

18:03 libraryh3lp-support@chat.libraryh3lp.com thanks ;)

Appendix 3 - Chats needing improvement
Chat 1445175

In this transcript, the operator suggests a source for information and a few search terms, but does not stay to provide support throughout the patron’s search. This chat may have occurred at a time when there was no one else available to provide backup support for the chat operator; however, we feel that the operator should have continued to support the patron’s search rather than asking the patron to return later and exiting the chat.
19:46 **patron**: Hello, can you help me find articles on the benefits of mental activity/stimulation in elders?

19:48 **hagertyevewknd@libraryh3lp.com**: Please expand on what you are trying to find. If possible, give me an example of what you hope to find.

19:49 **patron**: I’m doing this for a project. I’m looking for scholarly articles that support the idea that mental activity like reading help promote mental health in older people.

19:52 **hagertyevewknd@libraryh3lp.com**: I think that a good place to start is to use the Proquest Research Library which you will find in the Quick Links section of the library's homepage. Before you search Proquest, check the box that says “peer reviewed” to be sure that you find scholarly articles. In Proquest, use the GetIt link to find out how to access the full-text of the articles that you would like to read.

19:53 **patron**: I have already been searching the databases, but have found little. Perhaps it’s the search terms I’m using: I’ve tried "mental stimulation elder", "mental stimulation senior", "mental activity elder" and "mental activity senior".

19:55 **patron**: Can you suggest an alternate way of phrasing things?

19:57 **hagertyevewknd@libraryh3lp.com**: You might try using "cognition" or "cognitive skills" instead of mental activity. For elder try "older adults," "geriatric patients," "aged," "senior citizens."

19:59 **hagertyevewknd@libraryh3lp.com**: I am leaving the reference desk for 15-20 minutes. Good luck searching. If you have no luck, IM back later.

19:59 **patron**: Thank you.

20:00 **hagertyevewknd@libraryh3lp.com**: You’re welcome.

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Chat 2173557

This transcripts serves as a representation of the number of chats we found that had a long wait time until the patron’s question was acknowledged. In this case there was a 12 minute wait until the librarian responded.

09:57 **patron**: How do I find articles from NY Times (recent) on fashion design?

09:57 **patron**: can't find database

09:58 **patron**: New student

10:10 **librarian**: Hello, sorry for the wait. I can assist.

10:11 **librarian**: In this case I would suggest LexisNexis Academic Universe.

10:17 **librarian**: There's a news search that's available in that resource and you can specify the paper and section you'd like to examine. You can also add date restrictions.

10:17 **librarian**: Are you still there?
Chat 2444133

In this transcript the patron is asking for a particular article but is unable to access the title due to technological issues. The librarian asks if they would like to find similar articles in the meantime and once the patron agrees the librarian copy and pastes several citations. While this approach is somewhat helpful, the wall of citations can be overwhelming and is visibly unattractive. Acting on a teachable moment by assisting the student with article retrieval and fewer citations may have been the better alternative.

14:52 **patron**: hello, can u please help me?
14:52 **librarian**: hi
14:52 **librarian**: with what?
14:53 **patron**: im looking for an article title is "Pain assessment in severe demented elderly based on facial expression"
14:53 **librarian**: where have you looked?
14:53 **patron**: CINAHL
14:53 **librarian**: http://drexel summon.serialssolutions.com/search?s.q=%22Pain%20assessment%20in%20severe%20demented%2elderly%20based%20on%20facial%20expression%22
14:53 **librarian**: uh oh
14:54 **librarian**: http://drexel summon.serialssolutions.com/search?s.q=%22Pain%20assessment%20in%20severe%20demented%2elderly%20based%20on%20facial%20expression%22
14:54 **librarian**: Page Not Found
14:54 **librarian**: I can inquire with the our staff who handle the relationships iwith our vendors.
14:54 **librarian**: This error shouldn’t come up. But there’s likely to be an explanation
14:55 **patron**: i have the the reference citation... if that helps
14:55 **librarian**: In the meantime, would you like to search for similar articles?
14:55 **patron**: sure
14:56 **librarian**: what's your email so they can email you back with what they find?
15:00 **librarian**: Academic Journal

Subjects: Caregivers; Communication; Home Nursing; Pain; Pain; Pain Measurement; Aged: 65+ years; Aged, 80 and over; Middle Aged: 45-64 years; Female; Male

Database: CINAHL

Add to folder Times Cited in this Database: (1)

Check Drexel for Availability.Drexel Full Text

2. Academic Journal

Assessing chronic pain in residents with dementia... Fourth European Nursing Congress. Full Text Available van Nispen tot Pannerden, SC; Zwakhalen, SMG; Candel, MJJM; Hamers, JPH; Curfs, LMG; Berger, MPF; Journal of Clinical Nursing, 2010 Oct; 19: Supplement: 158. (journal article - abstract, research) ISSN: 0962-1067

Subjects: Checklists; Chronic Pain; Dementia; Pain Measurement; Aged: 65+ years; Aged, 80 and over; Female; Male

Database: CINAHL

Add to folder

PDF Full Text

3. Academic Journal


Subjects: Dementia; Facial Expression; Pain Measurement; Aged: 65+ years

Database: CINAHL

Add to folder

PDF Full Text

4. Academic Journal

Influence of dementia on multiple components of pain. Detail Only Available (includes abstract) Kunz M; Mylius V; Scharmann S; Schepelman K; Lautenbacher S; European Journal of Pain, 2009 Mar; 13 (3): 317-25. (journal article - research) ISSN: 1090-3801 PMID: 18562225

Subjects: Dementia; Dementia; Pain Measurement; Pain Measurement; Pain; Pain; Aged: 65+ years; Aged, 80 and over; Female; Male

Database: CINAHL

Add to folder
Check Drexel for Availability. Drexel Full Text

5. Academic Journal

A psychophysical investigation of the facial action coding system as an index of pain variability among older adults with and without Alzheimer’s disease. Full Text Available Lints-Martindale AC; Hadjistavropoulos T; Barber B; Gibson SJ; Pain Medicine, 2007 Nov-Dec; 8 (8): 678-89. (journal article) ISSN: 1526-2375 PMID: 18028046

Subjects: Alzheimer’s Disease; Facial Expression; Pain Measurement; Aged: 65+ years; Aged, 80 and over; Female; Male

Database: CINAHL

Add to folder Times Cited in this Database: (2)

PDF Full Text

6. Academic Journal

Use of the Certified Nursing Assistant Pain Assessment Tool (CPAT) in nursing home residents with dementia. Detail Only Available (includes abstract) Cervo FA; Raggi RP; Bright-Long LE; Wright WK; Rows G; Torres AE; Levy RB; Komoroff E; American Journal of Alzheimer’s Disease & Other Dementias, 2007 Apr-May; 22 (2): 112-9. (journal article - research) ISSN: 1533-3175 PMID: 17545138

Subjects: Dementia; Pain Measurement; Pain; Aged: 65+ years; Aged, 80 and over; Middle Aged: 45-64 years; Female; Male

Database: CINAHL

Add to folder Cited References: (23) Times Cited in this Database: (2)

PDF Full Text

7. Academic Journal


Subjects: Dementia; Gerontologic Nursing; Nursing Assessment; Pain Measurement; Pain; Aged: 65+ years; Aged, 80 and over; Middle Aged: 45-64 years; Female; Male

Database: CINAHL

Add to folder Cited References: (28) Times Cited in this Database: (4)

PDF Full Text

8. Academic Journal
A pain assessment tool for people with advanced Alzheimer's and other progressive dementias. Detail Only Available (includes abstract) Lane P; Kuntupis M; MacDonald S; McCarthy P; Panke JA; Warden V; Volicer L; Home Healthcare Nurse, 2003 Jan; 21 (1): 32-7. (journal article - pictorial) ISSN: 0884-741X PMID: 12544460

Subjects: Dementia; Pain Measurement; Scales; Instrument Construction; Aged: 65+ years

Database: CINAHL

Add to folder Times Cited in this Database: (13)

Check Drexel for Availability. Drexel Full Text

CINAHL

15:02 librarian: The three core concepts are each CINAHL subject headings and when combined yield 9 hits. I've pasted them above. You can just copy/paste the titles into the default search box on the front page of the Library website and links should come up.

15:08 patron: my email is philcanares@yahoo.com

15:08 librarian: okay

15:09 librarian: Those other articles would be good fall-back options.

15:09 patron: in addition, i have another title im having problem accessing..

15:09 patron: Patients with Advanced "Dementia How Do We Know If They are in Pain"

15:11 patron: i think it says "full text is not available above" below has a contact us hyperlink.

15:11 librarian: That one can be accessed full text.

15:11 librarian: Do you see an option for access through "Science Direct"

15:11 librarian: ?

15:12 librarian: If you supply a Drexel email I can send it to you.

15:13 patron: hold on let me figure out what my email is

15:14 patron: pc493@drexel.edu

15:16 librarian: ok

15:23 patron: thank you. one more can you please attach the reference citation. thank you

15:23 librarian: ?

15:23 librarian: for that article?

15:23 patron: yes

15:24 librarian: you should just go here and do it yourself:


15:26 patron: thanks

15:26 librarian: anytime. bye!
Appendix 4 - Examples of Best Practices in Chat Transcripts

Chat 1889264

In this transcript, the librarian explains what a call number is and how to find a physical book in the library. This patron seems to be a new library user and to have some library anxiety. The librarian’s pleasant, non-judgmental demeanor is effective. This chat could have been improved even further if the librarian had also explained how to use the catalog to find the book.

16:17  **patron**: Hi Good Evening

16:18  **patron**: I was wondering if you guys have the book "digital fundamentals floyd " ?

16:18  **librarian**: Hello and thank you for your question

16:19  **librarian**: let me check on that for you

16:19  **patron**: yes please

16:20  **librarian**: it looks like we do have it available. It should be located on the second floor of Hagerty Library with the general collection.

16:20  **librarian**: it's call number is TK7868.D5 F53 2000

<http://innoserv.library.drexel.edu/search%7ES9?/cTK7868.D5+F53+2000/ctk+7868+d5+f53+2000/-3,-1,,E/browse>

16:20  **patron**: wat does a call number mean?

16:20  **librarian**: that is how the books are arranged. instead of arranging by title or author, they are given this number which basically breaks it down by subject

16:21  **librarian**: in order to find it on the stacks, simply look for the TK section, then find the 7800 section, then 7868, etc

16:21  **librarian**: *the 7800 within the TK section, etc

16:21  **patron**: ok so from this number how am i supposed to locate the book ? sorry i have no idea thats why asking

16:22  **librarian**: the books are arranged by call number, which are basically arranged alphabetically & numerically

16:23  **librarian**: so as you walk through the stacks, you will see the sections that start with A, B, C and so on

16:23  **patron**: oh okay thanks

16:23  **librarian**: you will want to walk to the T section, and then find the TK books, then the TK7800 books, all within that same section

16:23  **librarian**: until you find the specific book you are looking for
16:24 **librarian**: if you need some help when you arrive at the library, feel free to speak to a reference librarian who can help you and give you a map of our stacks upstairs

16:26 **patron**: gotcha! thanks a lot

16:28 **librarian**: you're welcome

16:28 **librarian**: please feel free to write back if you have any further questions

Chat 2311100

The patron is unable to access the full text of an article. After verifying that Drexel does not have access, the chat operator walks the patron through the process of using interlibrary loan. This chat is exemplary because it demonstrates good, friendly service, connects the patron with the desired information, and empowers the patron to use library services.

21:15 **patron**: hello. I have found an article on ScienceDirect but I cannot get the full text for it. Is there anyway to do this? Here is the article:


21:16 **hagertyevewknd@libraryh3lp.com**: Sure. let me take a look and see what's up.

21:16 **patron**: thanks in advance!

21:25 **hagertyevewknd@libraryh3lp.com**: I see what you mean. It looks like Drexel's subscription simply doesn't cover that particular document. Your best bet at this point would be to request it via ILLiad, Drexel's interlibrary loan service. There's usually a quick turnaround on articles and book chapters, since they're handled via email attachment instead of shipping an actual book. Here's a link to the ILLiad FAQs that will answer any questions you might have: http://www.library.drexel.edu/services/illfaq and here's a link to the ILLiad request form (you'll need to sign in with your Drexel ID and password): http://illiad.library.drexel.edu/illiad/logon.html

21:26 **patron**: great, I actually did that while you were searching. Thank you very much for your help, I really appreciate it. In the future, if I cannot access something, should I just automatically go to Illiad rather than bother the chat person?

21:27 **hagertyevewknd@libraryh3lp.com**: Well, first, it's no bother! But if you're pretty sure that Drexel doesn't let you access the resource or doesn't own the item, then sure -- it'll save you some time. And don't worry, if you request an item that you *can* access through Drexel, the nice folks at ILLiad will let you know...

21:28 **patron**: wow, you are awesome! Thanks for all your help, I always appreciate it!

21:28 **hagertyevewknd@libraryh3lp.com**: Not a problem at all. And have a great (rest of your) evening!

21:29 **patron**: thanks you too

21:29 **hagertyevewknd@libraryh3lp.com**: Thanks!

Chat 2575016

Often, students come to chat with an information need, or an assignment they may not fully understand. Here, the chat operator conducts a reference interview with the patron, draws out more details about
the requirements of the assignment as well as the student’s personal interests, and helps the student reach a good starting point.

17:01 patron: hello

17:01 hagertyevewknd@libraryh3lp.com: Hi. What can I do for you this afternoon?

17:01 patron: can you help me find media outlets on education issues

17:02 hagertyevewknd@libraryh3lp.com: Sure. But first, what do you mean by "media outlets?" Are you looking for articles in scholarly journals? Or something else entirely?

17:03 patron: These sources can be in any format – television, movies, music, games, news programs, books, magazines, blogs, advertisements. They may be fiction, non-fiction, or opinion pieces and they may come from any source – the formal entertainment industry, politicians, journalists, the amateur entertainment industry (ie: YouTube and social media outlets). The criteria are open.

17:03 patron: they should a large following

17:04 hagertyevewknd@libraryh3lp.com: Okay, that sure gives you plenty of options. What types of sources do *you* think might be best, or would be the most interesting to use?

17:05 patron: maybe a youtube channel and website/blog

17:06 hagertyevewknd@libraryh3lp.com: Great. What kinds of things have you turned up so far?

17:06 patron: just having a hard time finding a source with a good following on public education in us

17:09 hagertyevewknd@libraryh3lp.com: I’d have to guess that there are hundreds (if not thousands) of education-related blogs out there. It's always a hot topic, and teachers and educators certainly seem to like to write and give their opinions about educational issues. Since we’re dealing with a pretty broad range of potential sources, it might be wise to try to narrow things down just a bit, though. Are there any education-related issues or topics that you are particularly interested?
17:09 **patron**: yea my professor wants the topic to be board

17:10 **patron**: so we can relate it to class concepts

17:10 [hagerteyewknd@libraryh3lp.com](mailto:hagerteyewknd@libraryh3lp.com): Board? I'm not sure I know what you mean. Do *you* have any particular interests?

17:12 [hagerteyewknd@libraryh3lp.com](mailto:hagerteyewknd@libraryh3lp.com): Here's a link to a list of the "Top 100 Education Blogs." I'm not sure who decided that these are the "top," but it ought to give you a good starting point. [http://oedb.org/library/features/top-100-education-blogs](http://oedb.org/library/features/top-100-education-blogs)

17:13 **patron**: broad* sorry

17:13 **patron**: yes public education issues with respect to integration

17:13 [hagerteyewknd@libraryh3lp.com](mailto:hagerteyewknd@libraryh3lp.com): (It does look like it's a few years old, though, so it's entirely possible that a good number of the blogs are either not current or have stopped altogether... still, with 100 of them, you ought to be able to find at least a few useful ones).

17:13 **patron**: the poor - middle classes

17:14 **patron**: yes public education issues with respect to integrating the poor-middle classes

17:16 [hagerteyewknd@libraryh3lp.com](mailto:hagerteyewknd@libraryh3lp.com): You might also want to check a site like "Education Nation," which is run by NBC news: [http://www.educationnation.com/index.cfm?objectid=32BF7571-6149-11E0-BB14000C296BA163](http://www.educationnation.com/index.cfm?objectid=32BF7571-6149-11E0-BB14000C296BA163) It seems to have a lot of material related to those sorts of subjects. The very first one, in fact, is about how some states have academic performance targets that are different for some races than others.

17:16 [hagerteyewknd@libraryh3lp.com](mailto:hagerteyewknd@libraryh3lp.com): On the right-hand side there is also a nice set of links to other good education blogs.

17:18 [hagerteyewknd@libraryh3lp.com](mailto:hagerteyewknd@libraryh3lp.com): The blog called "Class Struggle" (published by the Washington Post newspaper) also seems to be a good source; it is searchable by keyword and also has a number of good links: [http://www.washingtonpost.com/blogs/class-struggle](http://www.washingtonpost.com/blogs/class-struggle)

17:22 [hagerteyewknd@libraryh3lp.com](mailto:hagerteyewknd@libraryh3lp.com): Another site from a nonprofit organization in Minnesota called the United Front has specific categories or keywords that you can use to narrow down the material. Here is a link to the page on education featuring articles in
the "poverty" category. Just looking over it quickly, it seems like a lot of the posts and articles might be of interest for you: http://unitedfrontmn.org/education/category/poverty/

17:22 patron: ok. thank you so much

17:22 hagertyevewknd@libraryh3lp.com: You’re welcome, and good luck!

17:22 patron: :) 

17:22 patron: have a good day

17:23 hagertyevewknd@libraryh3lp.com: You too, and thanks.

Appendix 5 – Procedures for Collecting Data Using LibraryH3lp

Downloading Monthly Metadata

LibraryH3lp provides metadata about chat, including a timestamp, the user’s IP address, the responder’s queue, the operator name, and a unique identifier number which can later be used to download the chat transcript.

We downloaded this data for each month between June 2011-March 2013, in the form of a csv file which we imported into Excel.

To download these monthly metadata sheets, log in to LibraryH3lp Admin site and click the Activity tab. Using the menu at the top of the screen, select Monthly display and choose Range as the Selection Mode, as seen below. Use the calendar to navigate to the desired month.

Select the range of dates to cover in the download. Click once on the first date; it will be highlighted. Then, click once on the last date. A message will appear that the data is loading, and soon the metadata describing chat traffic between the selected dates will appear on the screen.
To download the month’s chat metadata, click the disk icon in the top left corner and select “Download CSV.” Open the file in Excel, and save in Excel format for ease of use. We repeated this step for each month in each data set, grouping them together in two spreadsheets.
The first data set, beginning where the previous virtual reference analysis project left off and ending with the removal of the reference desk, covers June 2011 - June 2012 and includes 4677 chats. The second data set begins with the first month after the removal of the reference desk and ends just before this virtual reference project begins, covering July 2012 - March 2013 and 2752 chats. Because we would not be able read every transcript, we numbered the chats to facilitate taking a random sample.

Collecting Quantitative Data Using LibraryH3lp Reports

LibraryH3lp can be used to generate reports about quantitative data including chats per hour and chats per queue.

Select the Reports tab at the bottom to generate reports.

To generate a report for chats per hour, select “Chats per Hour” from the Choose Report drop down menu. We generated a report for each of our data sets, entering the start date and end date of each set. We set the minimum duration of the chats to 0 and included unanswered chats (see following screenshot). We then downloaded the data as a csv file, and imported it into Excel for analysis.

To make the chats per hour data more manageable, we divided the hours into times of day: Morning (9 am-12pm), Afternoon (12:01-5 pm), Night (5:01-10 pm), and Outside Chat Hours (10:01 pm - 8:59 am).
We used a similar process to generate a report to display the number of chats per queue for each data set.

We used the sort feature in Excel to aid in data analysis. We sorted each data set by Wait Time, counting the number of chats that fell into each of the following groups:

0-30 seconds, 31-60 seconds, 61-120 seconds, and 121 seconds or more.

We repeated this process, sorting by duration into the following groups:

0-3 minutes (0-180 seconds)
3-6 minutes (181-360 seconds)
6-9 minutes (361-540 seconds)
9-12 minutes (541-720 seconds)
12-15 minutes (721-900 seconds)
15+ minutes (901+ seconds)

This allowed us to compare quantitative data across both data sets. Because our sample sizes differed, we focused on comparing the percentage of chats that fell into each of our quantitative categories.

**Taking a Random Sample**

We took a random sample of 25% of the chats in each data set. We used the integer set generator provided by random.org\(^1\) to generate 1168 integers between 1 and 4677 for the 2011-2012 and 688 integers between 1 and 2752 for the 2012-2013 data set.

We chose to have the integers sorted sequentially to ease the selection of the corresponding lines of metadata. Check the box “Use commas to separate the set members” to make the resulting integer set compatible with Excel. We selected the output format “bare-bones text document,” and saved the resulting page as a .csv file. We opened the file with Excel, selected the integers, and used the cut function and the paste-transpose function to paste them into column A.

\(^1\) http://www.random.org/integer-sets/
Random Integer Set Generator

This form allows you to generate random sets of integers. The randomness comes from atmospheric noise, which for many purposes is better than the pseudo-random number algorithms typically used in computer programs.

Step 1: The Sets

Generate [ ] set(s) with [ ] unique random integer(s) in each.

Each integer should have a value between [ ] and [ ] (both inclusive; limits ±1,000,000,000).

The total number of integers must be no greater than 10,000.

Step 2: Display Options

Each set will be printed on a separate line. You can choose from the following extra options:

- Number the sets sequentially.
- Use commas to separate the set members.
- Sort the members of each set in ascending order.

You can select the order in which the sets are printed:

- Print the sets in the order they were generated.
- Order the sets by the values that occur in them (in this case, you should also consider sorting the members of each set).
- Print the sets in random order.

Step 3: Choose Output Format

How do you want the sets to be shown?

- On a nicely formatted web page (type text/html)
- As a bare-bones text document (type text/plain)

Step 4: Choose Randomization

Do you want a new randomization or one that was prepared earlier? [explain this]

- Generate your own personal randomization right now
- Use pregenerated randomization from [ ]
- Use pregenerated randomization based on persistent identifier [enter id here] (max 64 alphanumeric characters)

Step 5: Go!

We created a sheet named “Random Sample” in the Excel file for each data set, copying the random integers into column A. We then copied the line of metadata with each corresponding number into this sheet. These selected lines of metadata describe the transcripts we read.
Collecting Qualitative Data

Downloading Transcripts

Each transcript has a unique identifier which can be used to retrieve it from LibraryH3lp, displayed in the metadata in the column titled “id.”

To download an individual transcript, add its unique identifier to the following URL:


A zip folder will appear containing a text file of the corresponding transcript.

Coding Transcripts

We first removed chats with duration of 0 from the random sample to another sheet. These questions never received a response, and we wanted to collect additional data on these unanswered questions, including patterns in time of day and queues. From these, we removed blank transcripts that displayed no question.

We then downloaded transcripts, one at a time, reading them and using a color code and notes to categorize them based on their topics. We used the following schema:

- Policy/Hours/Access
- Way finding/ known item
- Technical Issues/ troubleshooting/ eResources
- Ready Reference
- Miscellaneous
- Research

Please refer to the preceding report for a selection of sample topics illustrating examples of each topic.

We enumerated research questions by academic subject area, grouping them into one of the following categories:
We were interested in applying the READ Scale to the questions that we coded as research. We took a random sample, following the same procedures as above, selecting 50% of the analyzed research transcripts on which to apply the READ Scale. We discarded disconnected chats and uncodeable questions. Due to time constraints and difficulty with the subjective nature of the scale, we de-prioritized applying the READ Scale. We recommend developing internal guidelines and examples to encourage uniform application of the READ Scale.

Transfer Questions

We wanted to examine data about questions that had been transferred. We found that we were able to distinguish a transfer question only by reading the transcript, noting that there had been a change in operator. We selected each of these transferred questions, compiling them into their own spreadsheet, and categorizing them by topic so that we could find which types of questions were being transferred.