

# Asking, Listening, Observing: Learning about Student Research through Ethnography

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## Introduction

When do students choose to approach librarians for help? How do students wish to be contacted by the library? Do students use core services such as Reserves and Interlibrary Loan, and why? These questions among others guided the research project described in this paper. Ethnographic studies conducted by libraries are often qualitative investigations into how patrons use a library and its resources. These studies aim to understand what users do in the library, as opposed to what librarians assume they do. Using this approach, our university library conducted a four year research project to better understand undergraduate and graduate student academic research practices at our urban and suburban campuses.

Drawing upon in-depth interviews, unobtrusive observations, and a survey, this project's intent was to improve the Libraries' understanding of student research and study needs, with the goal of identifying ways to improve the library user experience. The project examined research processes from students' perspectives in order to consider those activities not as compartmentalized habits, but as situated within a larger constellation of practices that make up students' lives. Better understanding of student research processes can result in the ability to design learning environments and services that are more responsive to their needs. This paper will address takeaways related to the study's procedure and results, making it of interest to librarians considering a similar study at their institution.

## Literature Review

Based in the discipline of anthropology, ethnography encompasses a range of qualitative methods and is used in a variety of fields to understand the thoughts, experiences, and/or actions of a given culture through close observation and interpretation. A major strength of ethnographic research is that it demands the contextualization of activities, and as such, allows for the detailed description and understanding of a subject. Ethnography is well suited to revealing the complexities of social behavior and interactions. In libraries, ethnographic research can contribute to the important task of "understanding users, the way they work, and the various challenges they face when trying to locate, retrieve and use information."<sup>1</sup> Though a time- and resource-intensive process, Lanclos and Asher argue that ethnography in libraries holds potentially "profound implications for the nature of libraries, for definitions of work and practice, for imagining the connections that libraries have within their larger contexts, for holistic considerations of student and faculty experiences, actions, and priorities."<sup>2</sup>

Ethnographic research in academic libraries has skyrocketed in popularity since the mid-2000s, with many of these studies documented in Ramsden's recent review of the literature.<sup>3</sup> Of particular influence upon the

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trajectory of ethnographic library research was the University of Rochester's Undergraduate Research Project,<sup>4</sup> which was closely followed by projects conducted at Fresno State and MIT.<sup>5,6</sup> While these studies' methods varied, each adopted some combination of photo diaries, in-depth interviews, participant observation, and mapping activities. Also of major importance to the development of ethnographic library research was the Ethnographic Research in Illinois Academic Libraries (ERIAL) project conducted at five public and private Illinois universities, and the City University of New York's Undergraduate Scholarly Habits Ethnography Project that explored undergraduate research habits and technology use at six urban public commuter colleges.<sup>7,8</sup> Librarians continue to find inspiration in and innovative applications of ethnography as evidenced by several recent studies, including learning about undergraduate research practices by shadowing several students during the final weeks of their academic program,<sup>9</sup> incorporating ethnographic practices such as mapping and observation into library orientation sessions,<sup>10</sup> uncovering the implications of a learning commons model and student awareness of librarians' roles,<sup>11</sup> and considering students' use of space and technology within an academic library.<sup>12</sup>

## Methods

This research utilized a mixed-methods design and drew upon quantitative data to guide the development of the in-depth interview questions. The three data collection methods consisted of a survey, observations, and interviews, and data collection continued from fall 2012 to summer 2013. The coding and analysis of interviews and observations began in spring 2014 and concluded in early 2016. A summary of the project's timeline follows:

- Summer 2012: IRB approval received
- Fall 2012: Survey distributed
- Spring 2013: Observations conducted
- Spring and Summer 2013: Interviews Conducted
- Spring 2014: Coding process started
- Summer 2015: Coding process completed
- Fall 2015: Data analysis started
- Spring 2016: Data analysis completed

In terms of data collection, the first step was the development and distribution of a survey questionnaire consisting of 51 items. The survey was sent via university email listserv for all undergraduate and graduate students. After extensive promotional efforts that included a kick-off event with food, a banner on the library homepage, and the incentives of a MacBook Air and sports event tickets awarded to random participants, the survey received 1182 responses. Unobtrusive observations were conducted by taking notes in a variety of campus library locations on both campuses during different times and days of the week. A total of 32 hours of observations were completed, and the notes were compiled for analysis. Appendix A contains a sample observation sheet. The final method was in-depth interviews with 20 undergraduate and 10 graduate students. These interviews ranged between 40 and 60 minutes in length. One librarian acted as the interviewer and one librarian or staff member video recorded the interview. Sample interview questions are included as Appendix B.

Four librarians representing both campuses acted as data analysts for the project. After survey responses were collected, the interview transcripts served as the basis for a codebook to guide analysis of the observations and interviews. The observations and interviews were coded in teams of two, with the teams meeting periodically to report their progress. Several iterations of the codebook were devised during the process, and sample thematic codes from the final codebook are included as Appendix C. The survey data were entered into SPSS and analyzed using inferential and descriptive statistics, and the interview and observation data were analyzed using descriptive statistics in addition to coding.

## Results

Several areas with implications for library services and space were identified, which provide insight into participants' contact with librarians and staff, core library services of interlibrary loan and reserves, and student use of library space. These are intended to serve as a snapshot of the larger study at hand, which contains a number of additional areas of inquiry.

### *Student Interactions with Librarians and Staff*

Qualitative data from student interviews (n=30) indicated that sixty percent of interviewees had previously interacted with a librarian or staff member. These interactions included the following reference services: text (27%), research appointment (13%), reference desk (13%), phone call (13%), and chat (10%). Comments were frequently positive, as discussed by a sophomore: "I didn't know how to go about finding information. The librarian helped me. She showed me how to do things online, very helpful, a very good experience." Twenty observations (n=185) recorded in-person interactions with library staff in naturally occurring settings, such as a reference desk. When asked about the importance of contacting a librarian through the website, quantitative survey data (n=1072) revealed that forty-five percent of respondents rated the importance as *extremely* or *very important*. First-year students (54.3%) and sophomores (53.3%) were most likely to rate contacting a librarian through the Libraries' website as *extremely* or *very important*. Seniors (32.1%) and graduate students (30.7%) were most likely to rate contacting a librarian on the Libraries' website as *not very* or *not at all important*.

### *Contact Preferences*

Interviewees expressed varying preferences regarding how they wished to be contacted by the library. Regarding email, thirty-three percent of interviewees favored contact via their personal email account and ten percent via their campus email account. Many participants explained that they rarely checked their campus email account or auto-forwarded it to their personal email. As a junior stated, "I never checked my LIU email until this year when my professors said I can't use my personal email but need to strictly use my LIU email. I didn't know about that until this semester." Twenty-seven percent of interviewees preferred to be notified of events and new resources by physical posters in the library. In terms of social media, sixty-seven percent of interviewees were either unaware of the library's Facebook page or uninterested in "liking" the page. Thirty percent of participants discussed following the library via Twitter, but thirteen percent were not interested in doing so. Many participants preferred to separate their social media use from their academic work, or required an incentive of some type. As a graduate student stated regarding Facebook posts, "It'd have to pop up and be like, 'Like this and be entered to win a contest.' It has to be convenient and welcoming. I wouldn't go out of my way to search for the library to become friends."

### *Interlibrary Loan (ILL)*

Twenty percent of interviewees used ILL services, and twenty-seven percent were either unaware of the service or never used it. Many students expressed questions or issues regarding the service, including not knowing how to use it, the inconvenience of creating and maintaining an account, and the misconception that the service is solely for print books. A senior described their frustration with repeated unsuccessful attempts at using the service: "I tried to use it like three times. Every time I've not gotten the article. I have no idea how to use Interlibrary Loan...maybe integrate [ILL] when you're doing [library instruction]." Another participant discussed concerns that it would take too long to receive a book and they would instead drive to the nearby lending university to pick up the book in person. Nevertheless, some interviewees expressed positive experiences with the service:

“It was really easy...I found this article, but we didn’t have it but it said, ‘If you’re interested, you can get an inter-library loan’ so then I clicked on that and followed through.” When asked about the importance of requesting books or articles from another library, quantitative survey data (n=1072) showed that forty-seven percent of respondents rated the importance as *moderately* or *not important*, with juniors (26.8%) and seniors (26.2%) being the two groups most often rating the service as such.

### Reserves

Forty-three percent of interviewees used print or online course reserve materials and forty-three percent were either unaware of the service or never used it. In general, participants referred to syllabi or instructors to determine if reserves were available for a class, as illustrated by one sophomore’s comment: “It’s usually on the syllabi if a book I need is on reserve in the library.” One student’s strategy for finding reserves when none were available for a particular course was to inquire at the reference desk whether the material was available under a different class: “It wasn’t my teacher that reserved the book but I figured there’d be a teacher that would reserve it so I used that one.” No interviewees mentioned locating reserves using the library catalog or the library website’s reserves search function.

The most common reason interviewees gave for using reserves was to offset costs associated with buying course materials, often by photocopying or taking cell phone photos of materials. As explained by one participant: “I’ve used reserves so I didn’t have to purchase the book.” A graduate student felt strongly that, “It should be mandatory that every teacher has a book on reserve. The price of books and the price of school and the price of everything, it’s just not fair to expect everyone to buy every single book. My accounting book alone costs \$500.” When asked to indicate the importance of finding course reserve materials on the library website, fifty-seven percent of survey respondents rated its importance as *extremely* or *very important*. Most first-year (65.2%) and sophomore (63.0%) respondents rated finding reserves as such. With respect to discipline, most business (62.9%) and STEM (62.2%) respondents rated finding reserves as *extremely* or *very important*.

### Space

Thirty percent of interviewees indicated using the library as a group study or research space, and seven observations recorded students using the library for group collaboration. Creating their own space by moving library furniture and “cocooning” themselves in a protective way was a surprisingly common practice, described in different ways by fifty-seven percent of interviewees. In addition, twelve observations recorded students moving library furniture or creating personal space. As stated by one participant, “I make myself at home when I put myself down. My laptop here, my water here, so that everything’s there, out in the open.” In terms of leaving personal items, fifty-seven percent of interviewees temporarily left items unattended for a number of reasons, including to find books, use their cell phone, buy refreshments, or use the restroom. Fourteen observations recorded students leaving their personal items unattended, confirming this practice.

Sixty percent of students interviewed discussed noise in the library, and ten observations referenced noise as a factor. As one participant described, “I use those big headphones that cancel out the noise.” Twenty-seven percent of interviewees stated they used the library primarily for research, whereas thirty percent of students used the library primarily for studying. Twelve observations recorded students actively performing study or research skills. Regarding non-academic activity, seven percent of interviewees used the library to rest or relax, and thirteen percent used the library as a social gathering place. In reference to seating preferences, eighty percent of interviewees equally preferred tables or study carrels, followed by seating in proximity to outlets (33%) and soft seating (20%). Observations recorded thirty students occupying study carrels, sixteen at tables, and twelve at soft seating locations.

## Discussion

The discussion below sheds light on a number of questions related to how students interact with key library services. For example, do students find contacting a librarian to be important? What preferences do students have for receiving communication about library services and events? Are there trends among the use of services central to providing needed materials, such as Interlibrary Loan or Reserves?

### *Student Interactions with Librarians*

In general, interactions with a librarian appeared to be less important as students progressed in their studies. The impression from the interviews was that this trend was due to the upper-year students' a) increased confidence to work independently, b) improved information-seeking knowledge, and c) closer relationships with and greater reliance on professors for help. Regardless of year, most students preferred to contact a librarian via text message more than any other online or in-person method. It was also found that students tended to seek librarian assistance for locating information resources such as a book or journal articles or directional questions, rather than help with in-depth research strategies. As one student stated, their only interaction with a librarian was "when I couldn't find a book on a shelf or when I get lost and I can't find the room I'm supposed to go to." Students rarely expressed relying on librarians for other coursework help not related to the library.

Our study confirms the data from interviews conducted with 91 undergraduates and 45 teaching faculty as part of the ERIAL project. Miller and Murillo found that students primarily engage with librarians for directional or library-specific help, and that students' lack of relationships with librarians results in their frequent consultation of professors or peers for research assistance.<sup>13</sup> Given that students who are encouraged by librarians to ask for librarian assistance are no more likely to do so, but students encouraged by their professors to ask for librarian assistance are, closer collaboration with faculty and better communication of librarian roles are necessary undertakings.<sup>14</sup> Only twenty observations referred to student interaction with librarians or library staff, and at first glance this number suggests a very low rate of interaction. However, many observations were conducted in areas where there were no library personnel stationed, such as the stacks or hallways, so this number is not as insignificant as it appears.

### *Contact Preferences*

Analysis of student preferences regarding the ways they are contacted by the library or contact the library themselves revealed use of different platforms for different purposes, generally divided along the lines of academic and personal use. In terms of being contacted, participants expressed strong preferences for their personal email addresses compared to their university email accounts. That said, university email policy mandates that communication between faculty, staff, and students be done through the university email address and strongly discourages redirecting email to another address. Based on student email behavior and preferences the policy should be revisited and/or revised. Students generally used Facebook for personal non-academic activities, and showed little interest in "friending" the library or receiving library updates through other social media such as Twitter. This general lack of interest in using social media for receiving library information was striking, as a significant number of studies consider many applications of Facebook for library activities, particularly marketing. Fewer studies assess students' reception to this type of outreach. Of those that do, some find that students are receptive to Facebook as a marketing tool,<sup>15,16</sup> while others question student interest in social media for academic purposes and ask librarians to more deeply consider the usefulness of these tools.<sup>17,18</sup> Due to students' reported lack of interest, the findings presented here warrant caution before devoting significant resources to social media efforts.

Unexpectedly, signage and posters emerged in several interviews as one low-tech preferred solution to communicating library services, news, or recent acquisitions. These students wished to be notified of the same services that they might through email or social media, but in-person while at the library or on campus. That most interviewees who contacted a librarian virtually did so through text and chat, coupled with the finding that among survey respondents the importance of contacting a librarian through the website was rated as less significant by upper-division students, suggests that in appraising the contact preferences of students, demographic factors and both digital and low-tech modes of contact must be considered. Taking participant contact preferences as a whole, personal email was the most popular mode, followed by signage, Facebook, and Twitter. Given these disparate platforms it is advisable to not rely upon campus email accounts to reach students, and to instead pursue various channels, such as print and opt-in means for personal email or text.

### *Interlibrary Loan (ILL)*

One unanticipated finding concerning ILL is that students reported using this service less as they progress in their studies. A possible reason is that students become more proficient in using databases and finding resources as they progress, and therefore less reliant on ILL. Another cause may be associated with course requirements and the types of materials required by professors. For example, professors teaching upper-level courses may more frequently put textbooks on reserve or articles in the course management system. Finally, another reason may be a lack of creating awareness of the service for upper-level students. Both campus libraries have strong instructional programs for reaching first- and second-year undergraduates, but are less embedded in the curriculum for upper-level classes. One senior expressed their lack of knowledge of ILL as, “I had no idea. It’s nice that I can use stuff from other libraries if I needed to.” Another participant indicated only a slight familiarity, stating, “I know if you possibly need books, you can get them from other libraries, but that’s the extent of my knowledge.” Taken as a whole, the findings regarding ILL point to the need for increased awareness through library instruction, signage, and other promotional efforts in order for students to receive the resources they require. Although not a great deal of literature exists on users’ attitudes towards and use of interlibrary loan, Frank and Bothmann found through a survey of undergraduates that while the students aware of ILL learned of it through their professors, librarians, or the library website, awareness of the service remained an issue.<sup>19</sup>

### *Reserves*

Reserves were a highly utilized service among interviewees. Most students indicated using reserves for financial savings rather than reasons of convenience. Students who used reserves often felt that “the process and the service are good [but] sometimes the books weren’t available for classes. I also don’t think there are enough books available. If a professor reserves a book and there’s 30 students, it shouldn’t be one book for the whole class.” One possibility to account for this issue is a reserves policy regarding the number of copies to be made available in proportion to the number of students. Despite a high level of use reported among interviewees, considerably fewer survey respondents rated the importance of finding course reserve materials as *extremely* or *very important* (60%). This disparity between responses may indicate student dissatisfaction with the materials available or not knowing enough about the service. For example, a student who regularly used reserves mistakenly explained it as “resources from the professor behind the reference desk.” These findings suggest a need to communicate with students early in their education about the role of reserves as well as to convey to faculty the importance of placing sufficient course materials on reserves for students.

## Space

The findings noted that “cocooning” (defined by locating a preferred study space and remaining there for a long amount of time with snacks, entertainment, and so on) was relatively common, practiced by more than half of the interviewees. Relatedly, interviewees created their own space through moving library furniture, stacking books, or otherwise blocking off a space of their own to focus or seek privacy. These behaviors were observed in various areas of the libraries. Many students sought proximity to certain areas, such as natural light, away from distractions, or in areas where groups can work comfortably. In particular, students frequently sought out limited electrical power sources to charge their devices, even “waiting their turn” to sit near outlets. While some students did not move furniture or create their own space, it was clear that many valued the ability to form a space of their own, or to have the flexibility to do so. Modular furniture that can be configured for group or individual study, as well as study areas that create or accent a pleasant environment, could serve students in this manner.

Based upon librarians’ observations, students were asked if they left their personal items unattended. Students leaving personal items behind to meet a friend, use a bathroom, or get a snack was perceived to be a problem in terms of potential theft. Leaving personal items was confirmed to be a common practice, as 20 out of 30 interviewees indicated they leave behind items of some sort to do other tasks. This was particularly common among students who lived on campus, who likely feel they are in a familiar or friendly environment. Another activity that students were perceived as doing frequently was eating food in the libraries. 20 interviewees ate food in the library, and students who lived on campus were more likely to eat in the library than those who lived off campus. The observations confirmed both frequent eating in the libraries and the occasional instance of students leaving items unattended.

The issue of noise within the libraries was mentioned by 18 interviewees and referenced in ten observations. Noise was also mentioned by a number of survey respondents as a suggestion for what to change about the library. This dislike of noise in the libraries was shared across student academic levels and disciplines. The use of the libraries’ rooms designated for quiet study was not as prominent. Only eight interviewees used the quiet rooms, although observations indicated that these rooms are used during busy times of the semester. Some students, including seniors, were unaware the libraries had quiet rooms. This point underscores the necessity of communicating the different purposes of library space to students through formal and informal cues, particularly considering the implementation of a noise-monitoring device at one academic library had no impact upon the reduction of noise levels.<sup>20</sup>

In general, students expressed the need for more comfortable or functional spaces and extended hours. While two interviewees did not feel that the library needed to extend its hours, ten others would like the library to be open earlier, later, or 24 hours, due to personal, work, and academic obligations that made it difficult to visit the library. Observations indicated students using the library until closing and waiting for the library to open, particularly during limited hours on the weekend, suggesting the need for increased library hours. Other items discussed by students as key to improving the library were to increase the number of electrical outlets, to improve the wifi signal throughout the entire building, and to offer wireless and free printing. Hall and Kapa found similar requests from library users for larger table space, additional comfortable furniture, and an increased number of desktop computers.<sup>21</sup> These requests underscore the fact that the material infrastructure of libraries cannot be ignored, for these basic features very well determine the quality of students’ library and academic experiences.

## Recommendations

For librarians seeking to conduct an ethnographic study at their own institution, we provide several brief recommendations that may assist in successfully undertaking such a project. First, determine the scope of the study you and others are able to commit to. A small-scale user experience study, while not necessarily ethnographic,

may be all that is necessary to revise a website or redesign a service. Truly ethnographic research intended to better understand complex social phenomena requires a significant commitment of time and energy. It is recommended that individuals with experience or a considerable interest in ethnography, such as professors, researchers, or a class, are involved in the project to help successfully guide it. Having assistance from one's director or dean is of major importance. A project will require time and support, most likely in addition to one's existing responsibilities. For instance, the four members of the coding team invested an estimated 200 hours each to analyze the data. If at all possible, remain open to the possibility of extending data collection procedures and deadlines so that the involved process of analysis and interpretation can more naturally unfold, and always expect the project to take longer than anticipated. Asher and Murillo's "So You Want to Do Anthropology in Your Library?" would be of great use to librarians seeking to conduct ethnographic research.<sup>22</sup>

At our own library, several strategic actions have been completed or are being pursued based on the study's findings, including instructional efforts, new technology services, and the redesign of library space. At one campus, basic library instruction and an information literacy exam were integrated within the first semester curriculum, and librarians have become involved in Learning Communities to communicate directly with students early in their academic careers. New technologies were developed and deployed to make library use and research assistance easier, including a Library App for mobile devices and research appointments conducted via Skype. Both libraries have undergone renovations that include soft seating and natural light. The addition of "lounge environments," group study tables, and "Genius Bar"-inspired workstations supply study spaces more aligned with how students work.

## Conclusion

This project drew upon qualitative and quantitative data from unobtrusive observations, in-depth interviews, and an online questionnaire, exploring undergraduate and graduate student library and research experiences at two university campuses. Analysis of the data through an extensive coding process revealed myriad findings relating to library services, use of technology, student research habits, and use of library space, several of which are described above. Future research might consider the incorporation of other methods, such as mapping exercises or student photo diaries. Additional research could be conducted in intervals of three to five years, contributing an important longitudinal dimension to the qualitative study of research and study habits.

Though potentially requiring new skills and a considerable contribution of time, the data and insights derived from ethnographic research are often unique in their detailed description and contextualized understanding of information practices. Moreover, ethnography in libraries allows researcher-librarians to move past assumptions regarding the use of services and resources to discover what happens in actuality. In a time of large-scale quantitative assessment and extensive capture of student data, "Ethnography can serve as an effective antidote for the problematic reliance in higher education (including libraries) on analytics and quantitative measures of effectiveness."<sup>23</sup> As libraries continue to seek ways to meet the needs of their campus communities, ethnographic research holds potential for doing so in a way that reflects the complex nature of library operations, users' lives, and the ways that various social forces interact.

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# Appendix A: Sample Observation Recording Sheet

Location: PERIODICALS READING ROOM LOWER LEVEL  
HALLWAY LOWER LEVEL  
Date: 02/25/2013  
Time started: 10AM  
Time ended: 10:30AM

*A–Activities are goal directed sets of actions—things which people want to accomplish*

*E–Environments include the entire arena where activities take place*

*I–Interactions are between a person and someone or something else, and are the building blocks of activities*

*O–Objects are building blocks of the environment, key elements sometimes put to complex or unintended uses, changing their function, meaning and context*

*U–Users are the consumers, the people providing the behaviors, preferences and needs*

| What I Saw/Raw Data<br>(A, E, I, O, U/Spradley)  | What I Thought/Interpretation  |
|--|--|
| <p>The Hallway area was empty during the entire time of observation (except for the normal walking-through traffic).</p> <p>There were two groups of students in the periodical reading room area. One group consisted of three students. They were sitting at the large table by the windows. Students had iPads, laptops, smartphones, food, and water on the table. They also talked in full voice. The second group was consisted of two students sitting at the table close to the wall by the Technical Services area. They had food, water, and laptops on the table. There was very little interaction between those two students. They were reading and using laptops. At one point, one of the two students got up and left the area with her iPhone in hand. Previously she was trying to make a phone call and could not get a reception.</p> <p>Besides those two groups one student was sitting by himself at the empty computer carrel and was reading. Another student walked in, went to the computer terminal, logged into an unidentified database, and printed an article.</p> | <p>The student sitting by himself (reading) was there long before the observation began. I saw him at 8AM in the morning on exactly the same spot.</p> |

## Appendix B: Sample In-Depth Interview Questions

When you study in the Library (if you do), do you prefer to be around other students, or have more of your own personal space? Can you describe why you prefer this? If you prefer to have more of your own space, where do you go to find a more private space in the Library? Do you ever have to “create” your own space? If yes, can you describe how you do this?

When you study, do you have more than one electronic device in use? Do you ever listen to audio such as music, tutorials, etc. on headphones while you are studying? If you do, can you describe what you typically listen to?

Do you come to the Library when you are on campus? If yes, do you tend to come to the Library alone or with friends and classmates? If you come to the Library alone or as a group, what are some of your typical activities? How often do you come to the Library when you are on campus?

Are you interested in receiving information about the Library’s services and programs via social media? For instance, would you “Like” the Library on FB or follow us on Twitter?

If you use the Library to study, do you bring a laptop with you? Where in the Library do you tend to study? Do you use different areas of the Library at different times, or for different reasons?

Do you seek help from Library personnel? If yes, please describe. If not, when you have questions regarding your assignments or research projects, where do you turn for assistance?

Have you ever used the Libraries’ website to help you with an assignment? If you did, how did you find the Libraries’ website/homepage? Can you show me how you used the website and how you found your way to the things you used?

Do you access the Library from home? If you do, can you give me an example of what you did or what you were looking for? Did you ever need help when trying to connect to the Library from off-campus? How often do you access the Library’s website and for how long?

## Appendix C: Sample Thematic Codes from Codebook

| Major Theme                 | Code     | Subtheme                      | Code       |
|-----------------------------|----------|-------------------------------|------------|
| Student Research Strategies | RESSTRAT | First Source Consulted        | FIRSTSRC   |
|                             | RESSTRAT | Search Engine Use             | SEARCHENG  |
|                             | RESSTRAT | Evaluating Sources            | EVALSRC    |
|                             | RESSTRAT | Shelf Browsing                | SHELFBRW   |
|                             | RESSTRAT | Catalogue Browsing            | CATBRW     |
|                             | RESSTRAT | Keyword Search                | KEYSEARCH  |
|                             | RESSTRAT | Copy and Paste as note taking | CPPSNOTE   |
|                             | RESSTRAT | Textbook Acquisition          | TEXTBKAQ   |
|                             | RESSTRAT | Time Spent In Library         | TIMEINLIB  |
|                             | RESSTRAT | Downloading and Printing      | DLPRINT    |
|                             | RESSTRAT | Downloading and Emailing      | DLEMAIL    |
|                             | RESSTRAT | Use of Cloud Storage Services | CLOUDUSE   |
|                             | RESSTRAT | Fulltext                      | FULLTEXT   |
|                             | RESSTRAT | Bibliography                  | BIBLIOG    |
|                             | RESSTRAT | Peer review/scholarly         | PEERREV    |
|                             | RESSTRAT | Take picture with phone       | MOBILEPIC  |
| Student Study Habits        | STUDYHAB | Time Spent In Library         | TIMEINLIB2 |
|                             | STUDYHAB | Print                         | PRINT      |
|                             | STUDYHAB | Saving                        | SAVE       |
|                             | STUDYHAB | Playing Music                 | PLAYMUS    |