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In Their Own Voices: An Ethnographic Perspective on Student Use of Library Information Sources

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ABSTRACT. *A medium-sized academic library system conducted a multi-year (2012–2016), large-scale ethnographic study using a survey, observations, and in-depth interviews. The goal of the project was to better understand how students conduct research and study in the library. The analysis of the large pool of data resulted in various reports of theoretical and practical nature. This article addresses one aspect of the findings: undergraduate and graduate student use of library resources. The findings offer an array of considerations for designing effective library services and provide a more nuanced understanding of how student use the library website, libguides, and library databases as well as print and electronic collections.*

KEYWORDS ethnography, library resources, ethnographic methods, library website, libguides, library databases, electronic collections, print collections

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Long Island University (LIU) is a private institution serving approximately 18,000 students at its two primary campuses located in Brooklyn, New York, and Brookville, New York. The LIU Libraries conducted a multi-year research project beginning in 2012 to better understand undergraduate and graduate-student study habits at its urban and suburban campuses. Based upon the understanding of ethnography as one of the best ways to explore a "culture"—in this case, the culture of LIU student research habits—this project's intent was to improve the libraries' understanding of student research and study needs. The study examined research practices from students' perspectives in order to consider those activities not as compartmentalized habits but as situated within the larger constellation of practices that make up students' lives. Understanding student research processes and preferences can result in the ability to design learning environments and research services that are more responsive to their needs as well as account for the communities of which they and the library are a part.

A number of academic libraries have conducted large-scale studies using ethnographic methods in order to investigate student and faculty research behaviors, many of which are reviewed by Ramsden (2016). Ethnographic studies conducted by libraries are often exploratory qualitative investigations into how patrons use libraries and their resources, ranging most recently from faculty research and publication practices to the application of ethnographic methods regarding patron use of library catalogs (Wilson, 2015; Zoellner, Hines, Keenan, & Samson, 2015). As a longitudinal and labor-intensive approach to research, ethnographic methods demand a significant contribution of time and resources but have the potential to reveal "insights that are not 'visible' via conventional methods" (Dent Goodman, 2011, p. 7). Ethnography falls outside of the range of methods with which librarians are typically familiar. In some cases library teams work with an anthropologist specializing in qualitative research within higher education in order to provide the needed guidance and expertise (Foster & Gibbons, 2007).

A following literature review will provide a useful frame for this study's foundations, design, and findings.

LITERATURE REVIEW

An analysis of 81 studies in the library and information science literature that adopted ethnographic approaches identified five main categories of data collection methods: observation, interviews, fieldwork, focus groups, and cultural probes (Khoo, Rozaklis, & Hall, 2012). Although most methods represent relatively common data-collection procedures, innovative advances are apparent. Kinsley, Schoonover, and Spitler (2016), for example, used a novel approach by asking students to use personal narration and GoPro cameras to document their experiences when finding books.

University of Rochester's *Studying Students* Project (Foster & Gibbons, 2007) propelled ethnography to the forefront of academic library research. The study used an intensive mixed-methods approach to understanding what undergraduate students do to write research papers. Data collection included a rich range of sources, such as faculty and student interviews, photo surveys, mapping diaries, design workshops, late-night dorm visits, and reference desk surveys. This holistic approach to studying multiple components of the user experience provides a more complete understanding of students' library needs. A second landmark study, *The ERIAL Project: Ethnographic Research in Illinois Academic Libraries*, used a mixed-methods design implemented across five Illinois institutions (Duke & Asher, 2012). Multiple interview methods were administered to students, faculty, and librarians, as well as the use of photo journals, mapping diaries, and website design focus groups. The project findings uncovered what students actually do when they are assigned a research project. Additional studies modeled after the University of Rochester project are Fresno State's thorough examination of student research habits (Delcore et al., 2009) and Rutgers University Libraries' study of how undergraduates, graduates, and faculty use resources, in a primary effort to redesign the library's website (Au, Boyle, & MacDonald, 2009; White, 2009). Data collection methods included student surveys and interviews with students and faculty. The study findings were not only useful in effectively modifying the website but also became the basis for additional data gathering and future research studies. Areas outside of the website redesign identified for further exploration included the expansion of circulation and reference services, improved marketing of library tools, and curriculum modifications.

Although ethnographic research in academic library settings tends to focus on general student populations, several studies have been designed to target specific student demographics. For example, special academic libraries have implemented studies that focus on student information needs that align with a particular learning domain, including music (Hursh & Avenarius, 2013), performing arts (Clark, 2015), and health sciences (Powelson & Vaska, 2011). Studies often investigated the needs of specific education levels. Florida State University (Kinsley et al., 2015) and Georgetown University (Gibbs, Boettcher, Hollingsworth, & Slania, 2012) focused on graduate student library use and research habits, while Dunne (2016) followed final-year Irish undergraduates in the last 6 weeks of their program to determine how they conceived of the research process. A different underrepresented demographic was considered when interviews, photo surveys, and mapping diaries were conducted with commuting students at six City University of New York (CUNY) colleges regarding students' library experiences (Regalado & Smale, 2015a, 2015b). Alternatively, Mizrachi (2010) studied library use and information-seeking patterns outside of the library by students who lived on-campus.

Regardless of the research goal and the population investigated, in recent years ethnographic studies have become a steadfast approach to the planning and development of library infrastructure and space (Applegate, 2009; Bryant, Matthews, & Walton, 2009; Dominguez, 2016; Hobbs & Klare, 2010; Kinsley et al., 2015; Khoo, Rozaklis, Hall, & Kusunoki, 2016; May & Swabey, 2015). Other areas of the library related ethnographic inquiries included the provision of services (Allan, 2016), curriculum design (Pashia & Critten, 2015), and technology and website usability (Khoo et al., 2016).

METHOD

Data Collection

The project utilized a mixed-methods design for data collection: an online survey, observations, and interviews. The research team on both campuses was comprised of 18 librarians and staff members. Librarians involved in the study had expertise in a variety of areas, including usability studies, user behavior, user experience, qualitative and quantitative research methods, instructional design, and digital asset management. The research team was responsible for developing the timeline, methods, and implementing all aspects of the project. The team was also responsible for facilitating meetings and discussions, gathering feedback from key stakeholders, and disseminating the results. Prior to the beginning of the project, each of the research-team members underwent training in the ethics of conducting human research. The principal investigator, the University Library Dean, provided training in conducting interviews and observations. IRB approval for the project was obtained in summer 2012.

The project began in fall 2012 with the development and promotion of a survey questionnaire. The survey instrument was based largely upon Rutgers University ethnographic study. The survey consisted of 51 multiple-choice and open-ended questions focusing on technology integration and library use and was created using proprietary university software developed in-house. At the survey's conclusion was an invitation to participate in in-depth ethnographic interviews at a later date. An extensive promotional effort consisting of email and social media announcements, flyers, and a kick-off event resulted in a total of 1182 respondents.

Following the survey, 32 hours of unobtrusive observations were conducted in spring 2013. The research team took ethnographic "field notes" in a variety of campus library locations during weekdays and weekends, including holidays. Alongside each observation, research team members also recorded their interpretations of what they saw take place. The observational data were used to create interview questions. A sample observation sheet is included as Appendix B.

The final data-collection method occurred in spring 2013 following the conclusion of the observations and consisted of semi-structured, in-depth interviews with 30 undergraduate and graduate students at both campuses. From the pool of students who completed the survey and indicated their interest in being contacted for an interview, 20 undergraduate and 10 graduate students were randomly selected to participate in videotaped, in-person interviews. Each interview was between 40 and 60 minutes in duration and conducted by two individuals, with librarians acting as interviewers and librarians or library staff as camera operators. The interview questions, which were consistent across interviews but randomized, are included as Appendix C. The interviews were recorded on video, and subsequently the audio files were professionally transcribed and made available to the coding team for analysis.

Data Analysis

The project collected quantitative survey data, which informed the development of the interview questions and the observations, along with qualitative ethnographic interview and observational data. The data-coding and analysis process commenced in spring 2014 and concluded in spring 2016. The data-analysis team consisted of four librarians from both campuses as well as an administrative assistant and a graduate student charged with entering data into SPSS. First, a descriptive analysis of closed-ended survey questions was conducted using proprietary, in-house software. Subsequently, the team conducted a content analysis of the open-ended survey questions, followed by thematic coding and statistical analyses. Finally, the remaining survey responses were entered into SPSS for quantitative analysis using inferential statistics.

Next, a word count of the 185 observations and sample interviews was conducted. The word count provided grounding for the development of an extensive codebook used for in-depth interview and observation content analysis. A coding team of four librarians in groups of two, one representing each campus, read 15 randomly,assigned interview transcripts and developed a list of themes and subthemes that were assigned to each transcript on a question-by-question level. An interrater agreement of 85% was established between group members and between teams by double-coding 20% of the total number of artifacts (six randomly selected interviews). In addition to the interview transcripts, the observations were coded by the same teams. Both teams double-coded randomly selected observations from each campus library representing 20% of the total number of observations at that campus, which resulted in an interrater agreement of 83%. The coding team identified 459 unique codes at the question, unit, and thematic levels and developed six iterations of the codebook.

TABLE 1 Project timeline.

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

The survey data were analyzed using inferential and descriptive statistics, and the interview and observation data were analyzed using descriptive statistics only. Inferential analyses were performed on the survey data to make judgments about whether the probability that an observed difference between groups or variables is dependable or is likely to have occurred by chance. The two types of inferential statistics included Pearson's chi-squared test (χ^2), used to discover if there is a relationship between two categorical variables, and Cramer's V, used to gauge the strength of a relationship by factoring out the sample size. Descriptive statistics were used to summarize and describe quantitative information rather than draw conclusions about the student population. Table 1 summarizes the data collection, coding, and analysis timeline that occurred.

There were several limitations in interpreting and reporting the results. First, there were slightly more survey respondents at one campus than the other. Second, the campuses do not offer the same library services and in some cases refer to similar services by different names, leading to potential misidentification. Third, the interviews were semi-structured, resulting in slightly different questions being asked of each respondent. The observational data are limited in their reliability since each observation is subject to the biases of the observer. Finally, there were hundreds of variables that could be exponentially analyzed for correlation among the survey, interviews, and observations. The research team decided to focus their efforts on analyzing significant relationships identified within emerging themes. The authors recognize that insignificant relationships can also be considered important findings in and of themselves, which may be a component for future study.

FINDINGS

The data presented the ethnographic team with potentially hundreds of survey, interview, and observation variables. As a result of an analysis of statistically significant findings, seven major themes were identified: student interaction with librarians and library staff, student contact

preferences, library services (interlibrary loan and reserves), information sources (library and non-library), technology, space, and research and study habits. This article addresses findings in the area of library information sources (website and collections). When feasible, triangulation of quantitative survey data with qualitative data from interviews and observations was reported. However, the unobtrusive nature of the observations and the focus of the student survey on technology and library services precluded researchers from collecting data on some areas below.

Library Website

Qualitative data from student interviews ($n = 30$) indicated that 73% of interviewees used the libraries' website as an information source and that 13% had never used the library website. Most respondents stated that they used the website most often to access databases and journal articles for research assignments. Some participants indicated that they used the website superficially: " …just to find a quick question like hours or something, but nothing major." Regarding the user-friendliness of the libraries website, many of those interviewed indicated that it was difficult to find information sources on the website and used alternative discovery methods. For example, one student stated: "See, this was confusing, so I went to Google and searched for LIU journals to find it." Conversely, some interviewees found the interface user-friendly as corroborated by a student's comment that " …it's really easy to use. Honestly it's just all there." Most interviewees (57%) indicated that they remotely accessed subscription sources through the website. Many of these respondents conveyed frustration with having to repeatedly authenticate due to session timeouts and preferred to "actually be in the library to access the library website because doing it from off campus is a pain."

Regarding the ease of finding things on the libraries' website, quantitative student survey data ($n = 1072$) indicated that 68% of respondents figured out where things were on the website by browsing, and 20% knew exactly where things were. When asked to rate the importance of various library-related activities on the website, 59% of survey respondents rated finding articles and databases as extremely important, followed by accessing their library account (38.15%) and finding books (34.51%). The least-important activities rated by respondents were reading library news (16.88%) and searching for media sources such as DVDs and videos (14.74%). A chi-square test of survey data confirmed the significant statistical relationship between using the libraries website and student status (X^2 [16, $N = 1133$] = .000, p), discipline X^2 (16, $N = 1133$] = .003, p.), and residential status (X^2 [4, $N = 1133$] = .000, p.). Regarding student status, most graduates (47.9%) responded that they *always* used the library website as a basic part of their research process, whereas seniors (34.8%) *usually* did. Most first-years (32.6%), sophomores (35.6%), and juniors (27.1%) answered that they

sometimes used the libraries website as a basic part of their research process. With respect to student discipline, education students (47.6%) indicated that they used the libraries' website as a basic part of their research process, followed by social science (43.3%), STEM (31.5%), arts and humanities (30.7%), and business (29.5%) students. When it comes to residential status, students living off campus (36.7%) reported that they *always* used the libraries' website in their research process, while most students living on campus (30.3%) *sometimes* used the libraries' website in the same way.

Library Guides

Qualitative data from student interviews ($n = 30$) indicated that 13% of interviewees had used a library guide as an information source and 17% discussed having no knowledge of library guides. The interviewees who used them had very positive responses including: "The librarian made a fantastic one for my class. I totally loved it," and, "It's really helpful." When asked whether they used library guides often as an information source, quantitative data from student surveys ($n = 1072$) indicated that 10% of respondents used library guides often. In addition, 47% of respondents rated the importance of finding library guides on the website as *extremely* to *very important*. A chi-square test of survey data confirmed the significant statistical relationship between using library guides and student status (X2 [4, $N = 1134$] = .028 p), and campus (X2 [2, $N = 1134$] = .028, p). With regard to student status, library guides were used most often by juniors (12.3%), seniors (11.8%), and graduates (11.0%). Respondents at the suburban campus (12%) used library guides more often than those at the urban campus (7.3%).

Library Catalog and Collections

Qualitative data from student interviews ($n = 30$) indicated that 40% of interviewees used the library catalog as an information source, and 13% were either unaware of the catalog or never used it. In general, interviewees tended to use keyword searches to locate materials of interest and occasionally subject headings and controlled vocabularies. Most participants indicated that they used the catalog for discovery purposes by browsing the results online or by locating a germane resource and shelf browsing "an entire section for whatever else is relevant to what I'm looking for." However, one student used the catalog "only to find specific books that I already know about." On the other hand, interviewees who did not use the catalog were unfamiliar with it as an information source. For example, one student said "I don't even know where that [the catalog] is," and another student incorrectly asked "Correct me if I'm wrong. The book catalog requires me to—I'm gonna sign up for a book, and then I have to come pick it up?" When asked whether they used the libraries catalog often as an information

source, quantitative data from student surveys ($n = 1133$) showed that 25% of respondents used the catalog often. Most of survey respondents (59%) rated the importance of finding books through the website as *extremely* to *very important*. A chi-square test of survey data confirmed the significant statistical relationship between using the catalog and discipline (X^2 [4, $N = 1134$] = .000, p), student status (X^2 [12, $N = 1072$] = .007, p), and campus (X^2 [2, $N = 1134$] = .026, p). Regarding discipline, STEM (29.6%) and Education (26.0%) students used the libraries' catalog most often as a resource, followed by arts and humanities (22.0%), business (20.5%), and social science (18.5%) students. With respect to student status, 47% of respondents across all years of study rated finding books on the libraries' website as *extremely* to *very important*. Finally, when it comes to campus, respondents at the urban campus (28.1%) used the catalog more often than at the suburban campus (21.7%).

Regarding the use of print books versus eBooks, 60% of students interviewed used print books as an information source. However, when it comes to ebooks, 77% of interviewees either preferred not to use them as an information source for coursework or were unaware of the collection. For example, one student stated, "I think in my undergrad I did download some ebooks for reference. Lately, for the past year and a half, I haven't done that. Not for academic purposes," and another disclosed, "I didn't even know you had them." That said, other interviewees discovered ebooks serendipitously: "I was searching for regular books and then it said, 'ebook' and I was like oh that's so cool. Now it's just a preference I make." Respondents who preferred ebooks over print books largely represented graduate students (71%) whose bias was most often attributed to the convenience of ubiquitous access: "ebooks are just like a godsend in that way that I don't have to come to the library when I can't." In addition, 21 observations recorded students using some sort of print resource. When asked whether they owned an ebook reader, quantitative data from surveys ($n = 1041$) showed that 72% of respondents did not own such a device. Finally, in regard to the library collection, 23% of interviewees shared their opinions. Of this group, four felt the collection met their needs and three representing STEM and business were not satisfied.

Library Databases

Qualitative data from student interviews ($n = 30$) indicated that 93% of interviewees used the libraries' databases as an information source. Interviewees discussed a variety of ways in which they chose which database was best to use. The most common way was to pick from the list of recommended databases by subject area on the library website. Other ways included instructor recommendations, vendors or those listed on a libraries' guide. One student stated a preference for print periodicals: "I just walked

and looked through the shelves—I basically went up and down the aisles to see if I could find something related to my topic." However, a few interviewees preferred to search the individual online journals instead of aggregator databases: "I used to go to database by subjects and then go to sports science, and then I would have this slew of databases that I can search from. That wasn't really assisting me. It was still pretty difficult for me to search that way, so a classmate suggested I go to full–text journals and search by title." Some interviewees chose to personally subscribe to journals rather than use libraries' resources in order to have access to them after graduating: "I do actually subscribe to the *Journal of Nutrition and Dietetics*, so I have the physical copies." Although the majority of observers did not actively look at what students were doing on technology screens, 11 observations ($n = 185$) recorded the student use of the library databases on personal laptops and library computers.

When asked to rate the importance of finding articles or journals on the libraries' website, quantitative data from student surveys ($n = 1072$) indicated that 85% of respondents rated the importance as *extremely* to *very important*. A chi-square test of survey data confirmed the significant statistical relationship between using the databases and discipline (X^2 [4, $N = 1134$] = .000, p), residential status (X^2 [3, $N = 1072$] = .002, p), and student status (X^2 [12, $N = 1072$] = .000, p). In relation to discipline, education students used online databases most often (76.2%), followed by social science (66.5%), STEM (56.2%), arts and humanities (55.0%), and business (36.4%) students. Regarding residential status, 86% of respondents who lived off campus rated finding articles using the libraries' website as *extremely* to *very important*.

DISCUSSION

The study revealed interesting data on student use and non-use of library sources in their coursework. Some of the questions that arose included: How familiar are the students with the resources available through the libraries collection? How do students search for or locate the resources? What opinions do students have about the collection's currency or relevancy? Do students express a preference for print books or ebooks, or printed or electronic articles? Student use of the libraries website is one significant facet that tells us what is and is not being sought.

The libraries website represented a frequent source for academic-related information among study participants. The nature and extent of this information use varied from extensive research using multiple databases to simple questions such as determining the library hours or contact information for staff. The in-depth interviews in particular revealed the frequent sense of frustration that library users experienced when using subscription

resources. Technical issues presented some participants with significant unanticipated barriers, while the complexity of searching or selecting an appropriate database caused others to retreat to Google for their research needs. Survey findings confirm the frequent use of the libraries website for discovering and accessing articles and databases and in particular its frequent use by graduate students and seniors as well as students living off-campus.

Almost all students (90%) surveyed did not use library guides most often as a resource, and among those who did, they tended to be juniors, seniors, and graduate students. This is likely due to the greater research requirements of upperclass students, resulting in an increased need for library guides as providing the support and direction necessary for uncovering specialized subscription resources. The survey and interviews data related that infrequent use of the libraries online research guides is most likely due to a fact that Library Guides were recently implemented when the study was conducted. Regardless, students who did use library guides overwhelmingly agreed that they are useful information resources and should be implemented going forward. Whether these research guides take the form of libguides or other web-based library guides is of less importance than their presence and use, as the pedagogical efficacy across these different platforms has been found to be comparable (Bowen, 2014).

While some students competently used the catalog to locate resources, many students were unknowledgeable about the catalog's purpose and function. It is evident that this subject should be taught more often, as one student states, "Workshop events or lecture series or if there are trainings on how to use the catalogs—I think that'd be nice." In general, finding books became less important as students progressed in their studies until the graduate level, when it again became very important. Regarding use of books among interviewees, browsing in the stacks was described as both productive for locating related titles on a particular subject and as an activity which made students feel like "real scholars," pointing to the importance of the book stacks as physical place for students' information seeking and development as researchers. Based on these findings, the continued acquisition and maintenance of print books, along with an increased effort in keeping rapidly changing subjects such as STEM and business up to date within the collection are recommended.

A consistent use of print books but less frequent use of eBooks was discovered among study participants. This reflects the findings of Rod-Welch, Weeg, Caswell, & Kessler (2013), who found through a survey of students, faculty, and staff that while a majority of respondents preferred print books for reading, their preferences between print and ebooks depended on the specific activity being conducted and purpose for reading (i.e., leisure reading or skimming a book for relevant content). Students who utilized the print-book collection did so using a number of access methods, including most frequently searching for known titles in the library catalog, searching

for keywords in the catalog, and browsing in the stacks by call-number range. Of the students who did prefer ebooks, they indicated ease of access as being a primary benefit. The data indicates that online and shelf browsing remains a relevant means of resource discovery by students. Therefore, in the age of electronic collections the practice of correct classification, subject analysis, and labeling of library materials remain critical and vital for easy access to library collections. In terms of responding to relatively low reported interest in ebooks, a longitudinal study by Lamothe (2013) found that the size of an ebook collection is closely associated with the level of ebook usage, although its usage levels off after a large number of ebooks have been acquired. This suggests that the libraries ebook collection was not large enough to accommodate student needs at the time the data was collected. Among interviewees, several indicated that the print collections were not current enough to meet their research needs. This being the case, increased efforts should be made toward selecting and acquiring recent materials to meet the needs of students who that prefer and rely on print titles.

Students tended to access databases they were familiar with based on previous experiences, and frequently went straight to a database interface or used the libraries' list of databases arranged by subject. The use of library databases was central to many students' academic research. Interviewees numbering 28 reported using databases, while 56% of survey respondents used online databases most often as a resource. Education students used online databases most frequently, whereas business students used online databases least often. As with several other services and resources, many survey respondents rated finding articles on the libraries' website as *extremely* or *very important*. An interviewee described his use of databases as such: "I tend to use [Science Direct] with my friends, and they know it quite well." One student described the feeling of being overwhelmed by the number of database choices: "I just find it very overwhelming sometimes when I do look at or try to find an article in terms of how many search engines there are." Another student echoed this sentiment and why they prefer Google: "There's just so many databases that you don't know which one to pick …There's just so many articles that I'm not gonna go through all of them. That's why I go to Google. The top one usually is what I need." Students' reluctance to pursue results beyond the first page of results has been documented in other ethnographic studies, including that of Asher and Duke (2012).

In contrast to books, which become less important to students as they progress in their studies until the graduate level, finding articles becomes more important as students spend more time at the university. Moreover, finding articles plays a major role in access to information for students who live off campus, due to articles' largely online nature. These findings appear to illustrate the specialized nature of many scholarly journal articles, which tend to be more useful to upper-level students who are likely to be

involved in advanced work. While access to journal articles, and, by extension, library databases, is essential to many students, this importance is subject to many factors such as student major, prior familiarity with libraries and their resources, and off-campus versus on-campus status. Joo and Choi's (2015) study of undergraduates' intent to use online library resources found that usefulness and ease of use are the most significant factors at play. In addition, a student's familiarity with online library resources and their self-reported strong searching skills positively influenced their intent to use a resource. Taken into consideration with the findings from the study at hand, it is clear that both increasing student familiarity with the libraries resources and making these sources easier to access—two factors that interviewees identified as problems in their research—is key to increasing the use of subscription databases. These processes become even more complex when students are performing group assignments. Leeder and Shah (2016) found that when working collaboratively on their research, students found more useful sources and achieved greater information coverage while searching, but less query efficacy and a significantly higher cognitive load. As in this study, the participants found research using library resources to be a time intensive and largely inefficient process (Leeder & Shah, 2016).

CONCLUSION

Along with a number of other ethnographic studies that preceded it, this research provides insight into how students use (or don't use) library resources. A unique benefit of ethnographic research is that it can reveal questions and answers that researchers did not know needed to be asked for or found in the first place (Ramsden, 2016). Among the major findings of this study, it was determined that certain types of sources may be more or less important to students as their studies progress. These findings should be considered in relation to the methodologies that were adopted, including the fact that ethnographic research is intended to provide insight into the cultures studied and is not generalizable.

Ethnographic research is an increasingly popular tool for learning about how users experience libraries, and over the past decade has expanded from studies primarily conducted in the United States to a rapidly increasing interest in the United Kingdom and other regions (Ramsden, 2016). At the same time, libraries remain "stuck in a relatively unfinished ethnographic moment" due to such factors as libraries' dependence on quantitative methods for assessment purposes and a lack of institutional resources or interest in long-term research projects, leaving little room for the open-ended exploration necessary for ethnographic study (Lanclos & Asher, 2016). We encourage librarians and researchers to continue to explore the development and many applications of ethnographic methods in order to more fully understand the

use of academic libraries and the cultures that contribute to the shaping and changing of them.

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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 (A, E, I, O, U/Spradley)	What I Thought/Interpretation
The Hallway area was empty during the entire time of observation (except for the normal walking-through traffic). 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. 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.	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.

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 get an assignment for a class, what is the very first thing you do? Can you show me?

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 save or backup your work? If you do, describe how you save/backup your work – do you use a jump drive, or a service like Dropbox, or something else? Do you ever email documents to yourself to access them later? If you do, can you give me some examples?

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?

Do you or have you used print books from the Library for your classes (not textbooks)? Have you ever checked books out of the Library to use for your coursework? Have you used the Reserves collection (either print or electronic)?

Do you or have you used an eBook from the Library? If yes, was it for a class or some other reason? Did your professor assign it? How/where did you find the eBook? Can you show me?

If you use the Library to study, do you bring a laptop with you? Where in the Library to 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

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 notetaking	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	Tag (do students search for resources by "tags" (metadata)	TAG
	RESSTRAT	Professor	PROF (asking for research related help
	RESSTRAT	Abstract	ABSTRACT
	RESSTRAT	Fulltext	FULLTEXT
	RESSTRAT	Permanent link to resources/article	PERMLINK
	RESSTRAT	Bibliography	BIBLIOG
	RESSTRAT	Peer review/scholarly	PEERREV
	RESSTRAT	Take picture with phone	MOBILEPIC
	RESSTRAT	Web Bookmark	BKMARK
	RESSTRAT	BOOLEAN	BOOLEAN
	RESSTRAT	Subject heading search	SUBHEAD
	RESSTRAT	Database Subject Search	DBSUBJECT
	RESSTRAT	Textbook	TEXTBK (use of)
	RESSTRAT	Primary Sources	PRIMSRC
Student Study Habits	STUDYHAB	Time Spent In Library	TIMEINLIB2
	STUDYHAB	Print	PRINT
	STUDYHAB	Saving	SAVE

APPENDIX D

Sample Survey Questions

Have you had any library instruction while at LIU?

How many research-based papers, articles, presentations, or projects did you produce in this past school year (including high school if you are a first year student)?

During the last academic year, how often was the Libraries' website a basic part of your research process?

How often do you use the Libraries' website in a week?

How often did you use the Libraries' website last week?

Below are several activities that you can engage in using the Libraries' website. How important are each of these activities to you?

- Finding books
- Finding Articles or Journals
- Requesting books or articles from another library
- Contacting a Librarian
- Finding course reserves materials
- Consulting LibGuides/Subject Research Guides
- Looking up library hours, directions, and/or phone numbers
- Accessing your library account
- Reading library news or finding library events
- Finding media such as DVDs and Videos

Do you ever access the Libraries' web site using your web-enabled cell phone?

Would you use text messaging to get an answer to a reference or research question from the LIU Libraries?

Where do you access the Internet the majority of the time?

Have you used or do you use your iPad in class for class-related work?