

Learning about Student Research Practices through an Ethnographic Investigation: Insights into Contact with Librarians and Use of Library Space

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Article abstract

Objective – Student research habits and expectations continue to change, complicating the design of library spaces and the provision of research support. This study's intent was to explore undergraduate and graduate student research and study needs at a mid-sized university's two campuses in the Northeastern United States, and to improve librarians' understandings of these practices so that more appropriate services and spaces may be developed to support student learning.

Methods – The research project utilized a primarily qualitative design for data collection that spanned from fall 2012 to summer 2013, consisting of an online questionnaire, unobtrusive observations, and in-depth semi-structured interviews. Data collection commenced with a questionnaire consisting of 51 items, distributed through campus email to all students and receiving 1182 responses. Second, 32 hours of unobtrusive observations were carried out by librarians, who took ethnographic "field notes" in a variety of Library locations during different times and days of the week. The final method was in-depth interviews conducted with 30 undergraduate and graduate students. The qualitative data were analyzed through the application of a codebook consisting of 459 codes, developed by a data analysis team of 4 librarians.

Results – The results address topical areas of student interactions with librarians, contact preferences, and use of library space. Of the interviewees, 60% contacted a librarian at least once, with texting being the most popular method of contact (27%). In being contacted by the library, students preferred a range of methods and generally indicated interest in learning about library news and events through posters and signage. Participants were less interested in receiving library contact via social media, such as Facebook or Twitter. Regarding student use of and preference for library space, prominent themes were students creating their own spaces for individual study by moving furniture, leaving personal items unattended, the presence of unwanted noise, and a general preference for either working nearby other students in groups or in carrels to facilitate individual study.

Conclusions – Being aware of student research processes and preferences can result in the ability to design learning environments and research services that are more responsive to their needs. Ethnographic research methods, as part of an ongoing research process, are recommended as a means to better understand library user practices and expectations.





Research Article

Learning about Student Research Practices through an Ethnographic Investigation: Insights into Contact with Librarians and Use of Library Space

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Abstract

Objective – Student research habits and expectations continue to change, complicating the design of library spaces and the provision of research support. This study's intent was to explore undergraduate and graduate student research and study needs at a mid-sized university's two campuses in the Northeastern United States, and to improve librarians' understandings of these practices so that more appropriate services and spaces may be developed to support student learning.

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Introduction

Academic librarians have increasingly implemented ethnographic approaches to understanding how patrons utilize library spaces, resources, and services, due to the unique contextual insights that can be revealed. As noted in a recent review of the literature, Ramsden (2016) observes that the use of ethnographic methods by librarians has

increased greatly since the mid-2000s. Broadly defined, ethnographic research in libraries takes the form of exploratory investigations into how a library is used or conceived of. Instead of seeking to predict student behaviours or measure library use, these studies aim to cultivate a greater understanding of what patrons do in actuality, with an emphasis on their motivations or reasoning for doing so.

Using an ethnographic approach, the Long Island University (LIU) Libraries in Brookville, NY and Brooklyn, NY conducted a four-year research project to better understand undergraduate and graduate student help-seeking and study habits at its suburban residential and urban commuter campuses. This project's intent was to improve LIU librarians' understandings of students' research and study needs, and used the methods of in-depth interviews, unobtrusive observations, and a survey questionnaire to do so. The ethnographic framework was adopted in order to better consider students' practices from their own perspectives, and to situate research and study habits within the complex social settings that they take place.

Literature Review

Representing a range of qualitative research methods and based in the field of anthropology, ethnography seeks to understand the thoughts, experiences, and/or actions of a given culture through observation and interpretation. Ethnographic research necessarily involves the contextualization of practices and activities, and through a longitudinal and iterative process of information gathering, can allow for the detailed description and understanding of a subject under study. Because of its focus upon social behaviours, ethnography is particularly useful for developing insights into people's experiences and expectations.

In libraries, ethnographic research can contribute to the essential tasks of "understanding users, the way they work, and the various challenges they face when trying to locate, retrieve and use information" (Dent Goodman, 2011, p. 1). Through an analysis of the library and information studies literature, Khoo, Rozaklis, and Hall (2012) identified five primary types of ethnographic research methods employed by researchers in library settings: observations, interviews, fieldwork, focus groups, and cultural probes (p. 84). Many researchers acknowledge that, like other

qualitative methods, ethnography is a process requiring considerable time and resources to conduct. Yet Lanclos and Asher (2016) point out that as a practice ethnography holds significant advantages, including 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."

The field of academic librarianship has seen several particularly influential ethnographic studies, beginning with the University of Rochester's study that culminated in Foster and Gibbons' 2007 book *Studying Students: The Undergraduate Research Project at the University of Rochester*. Fresno State (Delcore, Mullooly, & Scroggins, 2009) and MIT Libraries (Gabridge, Gaskell, & Stout, 2008) also conducted large-scale studies using a combination of participant observation, interviews, mapping, and photo diaries around this time. Two recent studies of major significance are the Ethnographic Research in Illinois Academic Libraries (ERIAL) project conducted at five universities Illinois representing both public and private institutions (Duke & Asher, 2012) and the City University of New York's Undergraduate Scholarly Habits Ethnography Project, which explored student research and technology use at six public commuter colleges (Regalado & Smale, 2015; Smale & Regalado, 2017).

In a review of ethnographic methods in libraries, Ramsden (2016) describes the considerable range of subjects this approach has been applied to: "Ethnography has been utilised to learn more about collection management, use of library materials or technology, information seeking behaviours, reference desk use, student behaviour, space organisation and wayfinding, and to analyse (and even as a student task in) library inductions and teaching" (p. 256). Researchers continue to adopt and develop inventive uses of ethnography in library settings, whether as a method, as in Dunne's

(2016) shadowing of several students during the final weeks of their undergraduate studies and Kinsley, Schoonover, and Spitler's (2016) use of GoPro cameras to learn about students' processes of finding books in library stacks, or as pedagogical inspiration, as in Pashia and Critten's (2015) use of mapping and observation in library orientation sessions. Recent studies with implications for the research at hand include Holder and Lange's (2014) mixed-methods examination of library space and patron satisfaction, Allan's (2016) analysis of student awareness of librarians' roles within a learning commons setting, and Khoo, Rozaklis, Hall, and Kusunoki's (2016) surveys of student perception and usage of library space. These implications will be addressed in the Discussion section.

Aims

The purpose of this study was to better understand undergraduate and graduate students' research and study needs at Long Island University Libraries in order to inform the design of library services and environments. By studying the local culture of student research practices through self-reported behaviours and unobtrusive observations, the researchers sought to increase their comprehension of what research and study habits students are actually engaged in, and to use this information to identify ways to create a library more responsive to and reflective of students' expressed needs.

The research began as an initiative of the Dean of Libraries, whose background in anthropology was invaluable as inspiration for the project and in training librarians regarding data collection procedures. The project initially intended to learn more about how students were using the library website and electronic devices for their academic work. When it quickly became clear how closely intertwined the use of electronic devices, academic work, and library resources and space were, the project's scope was expanded to encompass the additional areas. The study did not begin with predetermined

research questions in order to remain open to possibilities during data collection and analysis, but instead focused upon the intersection of student research and study habits and library use.

This study holds potential significance in terms of both methodology and findings. While the aim of the research is not to provide replicable or generalizable findings, the project presents a methodology that examines a topic from multiple perspectives and allows for the triangulation of results. Though studies that examine people's behaviours describe results that can and will change over time, this investigation's aims encourage a greater understanding on part of the researchers that will ideally inspire future research and additional understanding, all necessarily rooted in different times and places. This study contributes to the evidence base in that it examines the findings in relation to other studies and compares where they meet or diverge. In adopting a combination of qualitative and quantitative methods using an ethnographic framework, the research methods also represent a contribution to the literature.

Methods

Data Collection

This project utilized a primarily qualitative design but drew upon survey data to formulate and revise the in-depth interview questions. The data collection methods consisted of unobtrusive observations, interviews, and a survey questionnaire, and involved a total of 16 librarians and staff members across 2 campuses. Each research team member underwent ethics training in research involving human participants. Data collection occurred from fall 2012 to summer 2013, while the coding and analysis of interview transcripts and observations began in spring 2014 and concluded in spring 2016. Table 1 provides a summary of the project's timeline.

Table 1.
Data Collection and Analysis Timeline for the Study Conducted

Time Period	Action
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

The first step of data collection was the development and distribution of a survey questionnaire consisting of 51 multiple choice and open-ended items. The primary uses of the survey were to inform the development of interview questions and recruit interview participants, and as such, it represents a separate phase of the research in terms of findings. The questionnaire was based on a survey investigating library website use that the principal investigator utilized in a study at a prior institution (Au, Boyle, & McDonald, 2009). The survey was created using proprietary university software, distributed through a university email listserv for all undergraduate and graduate students, and remained open for two weeks. 1,182 responses were received, for a response rate of 13.6%. At the conclusion of the survey participants could indicate whether they were interested in taking part in an interview. Appendix A contains the full survey questionnaire.

The second method of unobtrusive observations was conducted by research team members by taking notes in a variety of campus library

locations on both campuses in half-hour increments, including hallways, book stacks, computer labs, quiet study rooms, and near reference desks. These observations were conducted during different times and days of the week. The notes included what was observed using the Doblin Group's AEIOU Framework as well as the researcher's interpretation (EthnoHub, 2017). A total of 32 hours of observations were completed, and the notes were compiled for future analysis. The research team used the observation data to create interview questions. Appendix B contains a sample observation sheet.

The final data collection method was semi-structured in-depth interviews with 20 undergraduate and 10 graduate students, representing different majors and class levels. 15 students from each campus were randomly selected from the pool of survey participants for a total of 30 interview participants. For each interview, one librarian acted as the interviewer and one librarian operated a camera to video record the discussion. Sample interview questions are included as Appendix C. Interview durations ranged between 40 and 60 minutes, and participants were compensated for

their time with a \$30 gift card for a large online retailer. The audio files were professionally transcribed and made available to the team of librarians performing coding and data analysis.

Data Analysis

Four librarians representing both campuses volunteered to act as data analysts for the study. After survey responses were collected, a word count of the 185 observations and 15 randomly selected interview transcripts served as the basis for developing a codebook, to later guide the coding of observations and interviews. The observations and interviews were coded in teams of two, with one librarian representing each campus. Each coder read a given observation sheet or transcript and inserted codes into the text as applicable. After completing a transcript or set of observations, the pairs met to reconcile their coding and agree upon a final version. The teams met periodically as a group to report their progress and compare themes. An interrater agreement of 85% was established between group members and between teams through double-coding 20% (6) of the total number of transcripts.

The initial version of the codebook was devised through a review of prominent keywords from the observation word count, along with an analysis of the 15 random interview transcripts for repeated themes that was conducted in pairs and then as a group of four. A total of 6 iterations of the codebook were devised during the process, and the final codebook contained a total of 459 codes at the question, unit, and thematic levels. Sample thematic codes from the final codebook are included as Appendix D. 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.

Limitations

In terms of limitations regarding data analysis, each campus library offers different services and has different spatial configurations, making direct comparisons across campuses difficult. As a data collection method, unobtrusive observations are subject to the observer's biases, and thus have limited reliability when considered alone. Interviews were semi-structured and conducted by multiple interviewers at two campuses, potentially resulting in differences in how the interviews were conducted or the interview questions posed. Although the precautions of calculating interrater reliability and working in pairs were taken to limit coder bias, it is also possible for errors to have occurred during the coding process, as coders' biases could potentially lead them to focus on some findings while unconsciously ignoring others. The qualitative orientation of this study resulted in a long data analysis process, and as such, the data has aged significantly since its collection. Because ethnographic research is highly contextual and dependent on many unique variables, the study's results are not generalizable to other settings. The findings should not automatically be assumed of one's own library users, or applied directly to one's services or space without first conducting research into the needs of a student population. However, the methods and data analysis process may be of significant interest and use to other researchers seeking to conduct a study of their own.

Results

Seven major themes were identified through data analysis, including: 1) student interactions with librarians and contact preferences, 2) access services (such as Interlibrary Loan and reserves), 3) use of online library sources, 4) use of non-library information sources, 5) use of technology for academic work, 6) use of library space, and, 7) research and study habits. Because the full results from this study are not possible to describe within one article, the results at hand

will focus upon two themes with potential implications for academic library service and space planning: participant interactions with librarians and contact preferences, and participant use of library space. These two themes were selected in order to provide an illustration of relatively distinct but potentially overlapping areas related to library services and use, reflecting the study's aims of examining the library holistically while keeping the results to a manageable scope.

Student Interactions with Librarians and Contact Preferences

The three data collection methods each furnished different perspectives on student interactions with library staff. Among interviewees (n=30), 60% had interacted with a librarian for academic purposes one or more times. Of these interactions, students reported using or preferring various modes, including text message (27%), research appointment scheduled in advance (13%), Ask-a-Librarian desk (13%), phone call (13%), and instant message chat (10%). Students who interacted with a librarian typically expressed favorable comments, as one sophomore described after a recommendation from her professor prompted a visit to the Ask-a-Librarian desk: "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." Of all the survey respondents (n=1,072) 45% considered contacting a librarian through the Libraries' website as either "extremely important" or "very important." First-year students and sophomores were most likely to rate contacting a librarian through the website as "extremely important" or "very important," at 54% and 53% respectively. This importance decreased as levels of study increased, with graduate students least likely to select "extremely important" or "very important." Among the 185 unobtrusive observations, 20 in-person interactions with librarians were recorded.

During interviews, students were asked their contact preferences for library information and whether they would welcome contact from the library on social media. Responses varied widely, but email, print (such as signage and flyers), and social media (including Facebook and Twitter) were discussed most often. More than one-quarter of interview participants (27%) were interested in learning about library services, events, new acquisitions, or general library news by signage and posters. Only a handful of students reported regularly checking their university email account, instead relying on a personal email address. "I never checked my LIU email until this year," one junior stated, who did so only "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."

Although social media was widely used by both undergraduate and graduate students, many interview participants favored social media to interact with friends and family instead of purposes related to academic work, and drew a strong distinction between the two. When asked if they were aware of the library's Facebook page and if they would be interested in "liking" it if they had not done so already, 67% of students were either unaware or uninterested. Several students stated they would "like" the page if it was convenient to do so, or if they received some incentive, such as the opportunity to win a prize. As one graduate student described, "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." Twitter was used less frequently than Facebook by interviewees, with 30% using the website in some manner and 13% of Twitter users uninterested in following a Library Twitter account. Using the platform to keep up to date with personal or professional interests were the most common reasons for not wanting to follow a Library account.

Student Use of Library Space

Concerning student use of library space, individual study was a prominent theme across the data. By moving furniture, occupying nearby chairs and table space with their belongings, stacking books around themselves, and other means, students would “cocoon” themselves to focus their attention on studying or signal that they did not want to be disturbed. This practice was described in 12 observations and 57% of interviews. One graduate student related the importance of having everything spread out and “just so” in order to concentrate: “I make myself at home when I put myself down [to study]. My laptop here, my water here, so that everything’s there, out in the open.” Studying as part of a group was another recurrent theme, with 7 observations and 30% of interviewees describing meeting with classmates to study for a test, prepare for a presentation, conduct research, or other academic tasks.

Librarians at both campuses had observed that students frequently left their laptops, phones, or other personal items unattended. To determine why this happened, interviewees were asked whether they had left personal items unattended for any length of time in the library. More than half of the interviewees (57%) stated that they had, whether to use a restroom, leave a quiet space to take a phone call, or purchase a snack, and 14 separate observations confirmed the interview data. No participants reported having items stolen, and they left their belongings because they felt the library was a “safe place” where theft was not an issue, or they assumed the library had video surveillance cameras that would record a theft.

Along with creating individual study spaces, studying in groups, and leaving items unattended, another prominent theme included student preferences in seating. Students were generally open to different types of seating arrangements and furniture types, and their preferences largely depended on the activity they engaged in. Tables or study carrels were

equally preferred by 80% of interviewees, followed by any type of seating as long as outlets were located nearby (33%), and soft seating such as couches (20%). Unobtrusive observations confirmed the popularity of individual study carrels, with 30 students noted at carrels, 16 at tables, and 12 at soft seating locations. Finally, the problem of unwanted noise was a prevalent theme, with 10 observations and 60% of interviewees referencing excessive noise in the library. Students addressed this issue in various ways, including using earplugs while studying, wearing earphones but not playing music, and one senior who took substantial measures, stating, “I use those big headphones that cancel out the noise.”

Discussion

The following discussion addresses the two primary areas of interest described in the findings: student interactions with librarians and contact preferences, and student use of library space. The findings will be further contextualized and compared to the evidence presented in related research studies.

Student Interactions with Librarians and Contact Preferences

Comparing interactions with a librarian to students’ level of study, interactions appeared to be less important to students as they progressed in their studies. Interviews suggested this trend was due to three factors among upper-level undergraduates and graduate students: a) an increased confidence in conducting work independently, b) an increased familiarity with academic information resources, and, c) a greater reliance on professors for assistance due to having developed closer relationships. Contacting a librarian by text message was rated or described more favorably than any other online or in-person method, which contrasts with Carey and Prathak’s (2017) study based on in-person questionnaires that found nearly 75% of respondents prefer face-to-face reference.

Rather than seek help with in-depth research strategies or their academic work not related to the library, students of all levels and academic subjects tended to seek librarian assistance for primarily library-specific tasks, such as to locate information resources provided through the library, including books or journal articles, or to find an answer to a directional question. One student's remarks, echoed by a number of other interviewees, revealed that their only interactions with a librarian were "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." Findings concerning the type of assistance sought from librarians are in agreement with the evidence from a large set of interviews conducted as part of the ERIAL project, involving 91 undergraduates and 45 teaching faculty. Miller and Murillo (2012) reported that undergraduates typically seek directional or library-specific assistance from librarians, and identified a lack of relationships or connections with librarians as resulting in students' frequent consultation of instructors, peers, or family instead. Considering Pellegrino's (2012) survey findings that telling students to ask for help from librarians is effective only when teaching faculty are telling them, it is apparent that more effectively communicating librarian roles as well as closer collaboration with faculty are important efforts to undertake. Although few participants described library instruction sessions as a place of interaction with librarians, it remains a site of significant contact with students. More so than many other roles librarians have, library instruction has a great deal of opportunity for collaboration with both faculty and students through assignment design, pedagogical collaboration, and research assistance.

Student contact preferences concerning the library, including contact initiated by the student and by the library, included strong opinions on keeping certain social media platforms for certain purposes. Many participants used Facebook for non-academic personal activities, and expressed a general lack

of interest in library news on other platforms such as Twitter. This response to using social media for receiving library information, which ranged from rejection to indifference to tepid interest, was surprising considering an extensive body of publications suggests ways to adopt social media for library marketing and outreach. Of the studies that account for students' reception to library social media, some find receptivity to Facebook as a marketing tool (Connell, 2009; Sachs, Eckel, & Langan, 2011), while other research casts doubt on student interest in social media for academic purposes, and asks that librarians consider questions of patron privacy and the mining of personal data (Bodnar & Doshi, 2011; Epperson & Leffler, 2009). Due to students' reported lack of interest as well as the rapid rate at which the popularity of social media platforms waxes and wanes, the findings may warrant caution and consideration of sustainability before devoting significant time and resources to social media outreach (Gaha & Hall, 2015).

Printed signage and posters were not mentioned in interview questions, yet were brought up favorably as a means of learning about library news, services, or collections. For students who were on-campus or at the library with some regularity, they wished to be notified of the same information they might otherwise be online. In light of the conflicting information received from interview participants, who preferred to contact librarians through text and online chat, compared to upper-division survey respondents, who rated the importance of contacting a librarian through the website as less significant, demographic factors and various channels of communication, such as posters, text updates, and email, should all be considered when appraising the contact preferences of one's student population.

Student Use of Library Space

The findings noted that "cocooning" (defined by locating a preferred study space and making it into one's temporary "home" for studying) was

relatively common, practiced by more than half of the interviewees. These 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 behaviours 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 the 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 benefit students in this manner.

Students leaving personal items unattended was perceived by librarians to be a problem in terms of potential theft. The findings confirmed this to be a common practice, as 20 out of 30 interviewees indicated they leave behind items 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. Creating more awareness of the risk involved in leaving one's items behind for any amount of time, through signage or other means, would be one way to potentially reduce this problem.

Noise within the libraries was mentioned across interviews, observations, and survey responses, and in all cases was something students wanted to change about the library. This dislike of noise was shared across student academic levels and disciplines. Reported 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 filled to capacity during busy times of the semester. Some students, including seniors, were unaware the libraries

had quiet rooms. This 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 noise levels (Lange, Miller-Nesbitt, & Severson, 2016).

In general, students expressed the need for more comfortable or functional spaces and extended hours. Many interviewees wanted the library to be open earlier, later, or 24 hours, due to personal, work, and academic obligations that made it difficult to visit. Observations indicated students using the library until closing and waiting for the library to open, particularly during limited weekend hours. Other items discussed by students as key to improving the library were to increase the number of electrical outlets, to improve the Wi-Fi signal throughout the entire building, and to offer wireless and free printing. Hall and Kapa (2015) found similar requests from library users for larger table space, additional comfortable furniture, and an increased number of desktop computers. Other recent qualitative and mixed-methods assessments of library space use have come to similar conclusions regarding the need for access to electrical power, sufficient group study space, and flexible seating (Asher, 2017; Dominguez, 2016; McCrary, 2017). These basic features that tend to be overlooked can very much determine the quality of students' library experiences.

Conclusion

Drawing upon data from in-depth semi-structured interviews, unobtrusive observations, and an online questionnaire, this project explored undergraduate and graduate students' library and research experiences at two campuses. After an extensive coding process, a thematic analysis uncovered a number of findings relating to library services, space, and student research habits. Future research could pursue a number of different directions, including focusing upon or incorporating

additional ethnographic methods, such as participant-driven photo elicitation methods (Bedi & Webb, 2017), or cognitive mapping exercises. Collecting data longitudinally, whether over several years or at intervals of two or more years, would contribute an important dimension to the study of research habits and library use.

The authors' libraries have undertaken several actions based on the findings, from instructional efforts to the redesign of library space. To increase student contact with librarians across all types of communication, librarians made efforts in the area of library instruction so that students would be comfortable approaching librarians for help later on. To help accomplish this goal, first-year students and an information literacy module were integrated within the curriculum at one campus. Additionally, librarians have become increasingly involved in Learning Communities, which are interdisciplinary courses that span a student's first academic year, to communicate more directly with students early on. In terms of digital initiatives, the library implemented a Library App for mobile devices, "Book a Librarian" research consultations conducted via Skype, and redesigned the library website. Participants noted overwhelmingly that comfortable furniture and pleasant spaces to study were a priority, and both libraries have undergone renovations that include soft seating, additional group study tables, and natural light. Concerning long term goals of this study, such as making ethnographic research on students' library use and academic practices a continual process and an ingrained part of the culture among Long Island University library staff, the outcomes have yet to be seen. For the time being, the results have been disseminated among members of the university, and they will continue to inform decision making while another research project is developed and conducted.

While ethnographic research demands a substantial contribution of time, exercising patience, and potentially learning new data collection and analysis skills, the benefits lie in developing a detailed and contextualized understanding of one's topic. While there are many methods of conducting research to better understand and assist library users, Lanclos and Asher (2016) compellingly argue that "Ethnography can serve as an effective antidote for the problematic reliance in higher education (including libraries) on analytics and quantitative measures of effectiveness." As academic libraries continue to seek ways to meet the needs of their campuses, ethnographic research holds potential for doing so in a way that accounts for the complexity of libraries, learning, and people's lives.

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Appendix A: Survey Questionnaire

Q1. What discipline are you affiliated with at Long Island University?

Social Sciences
Science
Technology
Engineering
Medicine
Arts and Humanities
Business
Education

Q2. What is your home campus at Long Island University?

[Campus 1]
[Campus 2]
[Campus 3]
[Campus 4]
[Campus 5]
[Campus 6]

Q3. What is your current status at Long Island University?

First year student
Sophomore
Junior
Senior
Graduate student

Q5. Do you live on or off campus?

On Campus
Off Campus

Q6. As of December 31, 2012, how many semesters have you been at Long Island University? (Count fall, spring, and summer terms)

1-2 semesters
3-4 semesters
5-6 semesters
7-8 semesters
9-10 semesters
11-12 semesters
More than 12 semesters

Q7. Have you had any library instruction while at Long Island University?

Yes
No

Q8. 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)?

0
1
2-4
5-10
More than 10

Q9. During the last academic year, how often was the Libraries' website a basic part of your research process?

Always
Usually
Sometimes
Seldom

Q10. How often do you use the Libraries' website in a week?

1-4 times
5-9 times
10-14 times
15 times or more
Never

Q11. How often did you use the Libraries' website last week?

1-4 times
5-9 times
10-14 times
15 times or more
Never

Q12. How do you usually access the Libraries' website?

Bookmark
Search for it using a search engine such as Google or Yahoo!
Type in the URL or web address
Link from Blackboard
Link from another Long Island University page
Link from Google Scholar
Do not access the Long Island University Libraries' website
Other (please specify)

Q13. Which of these resources do you use most often?

Interlibrary Loan
Google or another search engine
Google Scholar
LibGuides/Subject Research Guides Long Island University Libraries' website
LIUcat (the library catalog)
Online Databases (e.g. Academic Search Premier and JSTOR)
Wikipedia
WorldCat
Not applicable
Other (please specify)

Q14-Q24. Below are several activities that you can engage in using the Libraries' website. How important are each of these activities to you?

(Each Q below is rated using following scale: Extremely important; Very important; Moderately important; Not very important; Not at all important; No basis to judge).

Q14. Finding books

Q15. Finding articles or journals

Q16. Requesting books or articles from another library

Q17. Contacting a librarian

Q18. Finding course reserves materials

Q19. Consulting LibGuides/Subject Research Guides

Q21. Looking up library hours, directions, and/or phone numbers

Q22. Accessing your library account

Q23. Reading library news or finding library events

Q24. Finding media such as DVDs and Videos

Q25. When you use the Libraries' website, do you tend to . . . ?

Know exactly where things are

Figure out where things are by browsing

Get confused and ask for help

Get confused and give up

Q26. In general, how satisfied are you with the Libraries' website?

Very satisfied

Moderately satisfied

Neither satisfied nor dissatisfied

Moderately dissatisfied

Very dissatisfied

Q27. Do you ever access the Libraries' web site using your web-enabled cell phone?

Yes

No

Q28. What information were you seeking on the Libraries' website through your cell phone? (Check all that apply)

Hours

Databases

Library catalog

Contact information

My library account

Directions

Other (please specify)

Q29. Would you use text messaging to get an answer to a reference or research question from the Long Island University Libraries?

Yes

No

Other (please specify)

Q30. Are you aware that the Library has a new general information app available through the Libraries' web site?

Yes

No

Other (please specify)

Q31. Which devices do you use to regularly browse the web?

Smartphone

iPad

Laptop

Desktop

Other tablet device (Samsung Galaxy, etc.)

Other (please specify)

Q32. Which web browsers do you regularly use?

Firefox

Internet Explorer

Safari

Chrome

Other (please specify)

Q33-Q37. On average, how many hours do you spend on the web (using a web browser) each day for each of the following activities?

(Each Q below is answered using one of the following responses: Under 1 hour, 1-5 hours; 6-10 hours; 11 hours or more; None).

Q33. Research for school

Q34. Other research

Q35. Reading news

Q36. Online gaming

Q37. Social networking (i.e., Facebook, Twitter)

Q38. Which social networking sites do you use most frequently?

Twitter
Facebook
Tumblr
Google+
None
Other (please specify)

Q39. Please respond to the following: Do you have a desktop at home?

Yes
No

Q40. Please respond to the following: Do you own a laptop?

Yes
No

Q41. Please respond to the following: Do you have access to a computer at work?

Yes
No

Q42. Please respond to the following: Do you have a tablet computer?

Yes
No

Q43. Please respond to the following: Do you own a mobile/cell phone?

Yes
No

Q44. Which devices do you currently own?

iPhone
Android
Blackberry
Cell phone without internet access
Other (please specify)

Q45. Do you ever use your cell phone to do the following?

Send or receive e-mail
Send or receive text messages
Take a picture
Play music
Play games
Watch videos
Record a video
Access the internet
Keep a calendar
Do a research paper or assignment
Catch-up on assigned readings for class
Take notes
Use Apps
Video conference (i.e., Skype, FaceTime)
Other (please specify)

Q46. Where do you access the Internet the majority of the time?

Laptop at home
Laptop at school
Laptop at work
Desktop at home
Desktop at school
Other (please specify)

Q47. How satisfied are you with the wifi connection on your campus?

Very satisfied
Moderately satisfied
Neither satisfied nor dissatisfied
Moderately dissatisfied
Very dissatisfied

Q48. Where are you most often when you use your web-enabled cell phone?

Home
School
Work
Out Socializing with friends
Commuting (i.e., car, bus, train)
Other (please specify)

Q49. Have you used or do you use your iPad in class for class-related work?

Yes

No

Not applicable

Q50. If you have apps on your mobile device or other device (such as an iPad), which apps do you use most often?

Q51. Do you have any ideas for tools that you would like to see the library develop for mobile devices? Please describe them in the space provided and explain why:

Q52. Do you have any other comments, questions, or concerns?

Q53. May we contact you to participate in a voluntary in-person interview? (This interview will take approximately 60 minutes. If you are selected, for your participation, you will receive a \$30 gift card.)

Q54. Would you like to enter yourself into a drawing for a chance to win a MacBook Air, tickets to Barclays Center events, or a gift card? Please note that your survey responses will be stored in a database separate from your personal information for the drawing.

Appendix B: 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
<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. Besides those two groups one student was sitting by himself at the empty computer carrel and was reading.</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 C: 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?
 - If you prefer to have more of your own space, where do you go in the Library?
 - Do you ever have to “create” your own space?
- 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?
- Are you interested in receiving information about the Library’s services and programs via social media?
 - For instance, would you “Like” the Library on Facebook 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?
- Do you seek help from Library personnel?
 - If yes, please describe.
 - If not, when you have questions regarding your assignments or research, 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 connecting to the Library from off-campus? How often do you access the Library’s website and for how long?

Appendix D: 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
Student Use of Library	LIBSVUSE	Librarian/Staff Interaction	LIBINT
	LIBSVUSE	Chat Message	CHAT
	LIBSVUSE	Remote Access	REMACC
	LIBSVUSE	Reserves	RESERVES
	LIBSVUSE	Citation Help	CITHELP
Student Use of Library Space	LIBSPA	Stacks	STACKS
	LIBSPA	Leave Personal Items	LEAVEPIT
	LIBSPA	Food	FOOD
	LIBSPA	No Available Computer Stations	NOCOMP
	LIBSPA	Move Furniture	MOVEFURN
Student Study Habits	LIBSPA	Social Gathering Space	SOCSPA
	STUDYHAB	Time Spent in Library	TIMEINLIB2
	STUDYHAB	Print	PRINT
	STUDYHAB	Saving	SAVE
	STUDYHAB	Playing Music	PLAYMUS