

Ethnographic methods in academic libraries: a review

Abstract

Research in academic libraries has recently seen an increase in the use of ethnographic-based methods to collect data. Primarily used to learn about library users and their interaction with spaces and resources, the methods are proving particularly useful to academic libraries. The data ethnographic methods retrieve is rich, context specific, and often difficult to collect via other methods. This review provides an overview of research demonstrating how ethnography can be applied to learn about a variety of issues in academic libraries, ranging from space use to a way of teaching new students about library resources and facilities.

Introduction

Ethnography is the examination and exploration of a culture and/or cultural setting with the purpose of learning about the lives of that specific cultural group. Primarily associated with anthropology, it has traditionally involved the researcher immersing themselves in the group (covertly or overtly) for a lengthy period of time, observing and sometimes actively participating in their behaviours, values, social rules and language. Ethnography is a method that has seen comparatively low use in the library world to date, with most research undertaken in the United States. However, particularly with the aid of the inaugural UXLibs (User Experience in Libraries)¹ conference in 2015, interest has rapidly increased in the United Kingdom. The field of user experience in libraries is an emerging one, and while ethnography is not user experience, it can be utilised as one of the key methods in learning more about the cultures inhabiting our buildings and using our services, as the team behind UXLibs strongly advocate. A combination of various qualitative methods that has its origins in

¹ <http://uxlib.org/>

anthropology and sociological research, ethnography can be utilised in a broad variety of contexts, commonly in education, healthcare, and design. The method is primarily used within libraries to discover how others experience library services and environments, utilising methods including, but definitely not limited to, observation, interviews, mapping of experiences (which in itself can include a large variety of methods). The nature of ethnography means it can produce data that would be difficult or even impossible to retrieve via more commonly used methods such as quantitative surveys. The data can then be used to inform and guide decisions to help improve services, change design, or create new buildings.

Many with an interest in library ethnography may be surprised to find that Bourdieu (1994) adopted the method 60 years ago to learn about student attitudes towards Lille University Library. Bourdieu carried out observations of students using the library prior to extensive surveying of library users. Most students (38%) reported visiting the library to work on assignments without referring to resources (i.e. textbooks, catalogues etc.), but:

some 33 different kinds of activity were observed. Of these, 22 suggested distraction or relaxation, with some students endlessly checking their watches as if they were about to leave, others chatting continually with their neighbours or getting more involved with what their friends were doing than in their own work.

(Bourdieu, P., 1994, p. 123)

Bourdieu's description of student behaviour is most likely familiar to anyone who has worked in an academic library, but his use of a combination of surveying and observing is a technique that seems to have been neglected until its recent 'rediscovery' amongst academic libraries. Bourdieu concluded students "misrecognize" the purpose of academic libraries, modifying it from a place housing resources to one of a meeting or study space (1994, p. 123). Attitudes to academic library

purposes have dramatically changed since then, where libraries are more focussed on creating multipurpose spaces for students based on their needs (rather than those of librarians).

Ethnography can be used for a wide range of purposes beyond how people behave within libraries of all types (see Khoo, Rozaklis, & Hall, 2012 for a broader discussion and summary of ethnography use in all types of libraries), and thus modify services and spaces to reflect usage patterns.

This article presents an overview of research involving the use of ethnography in academic libraries, drawing together and summarising articles according to their research goals. Readers can use this article to learn more about how the method has been applied, and perhaps consider using the method themselves, developing their own ethnographic research. 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 way finding, and to analyse (and even as a student task in) library inductions and teaching. Frequently, ethnography is used to study a combination of some or all of these purposes. The articles included in this review represent the diversity of purpose within academic library research and the versatility of ethnography as a means of learning about our libraries and their users. Most commonly ethnographic research employs a variety of methods in itself, using different methods within the ethnographic remit to learn about different aspects and perspectives of the culture studied. The review is organised by the nature of the research purpose i.e. space use, student behaviours, and so on, so that readers may focus on their point(s) of interest. The papers included have been collated by the author throughout a longitudinal piece of research over a number of years via regular searches of databases (including LISA (Library and Information Science Abstracts), ERIC, and Scopus) and citation alerts. The amount of research using ethnographic methods in an academic library context is still small in comparison to other qualitative methods, and to quantitative research, so papers have been selected on the basis of their impact on later research, what researchers use the

data for that can be applied to readers' own investigations of library use, and the variety of purpose within the research.

Ethnography examining multiple questions

Some of the most seminal pieces of ethnographic research have been designed with the intention to learn more about a wide range of issues that often interact and cross over to create one 'story' of students' lives. Primarily based in the US, these studies have often utilised the expertise of an anthropologist to help enable libraries to study their users throughout longitudinal research, while embedding the skills required by staff to enable future research.

Perhaps the most influential research was conducted by a team at the University of Rochester, studying a number of libraries at the River Campus. Foster and Gibbons (2007) examined what was happening outside of the library that could influence student use of libraries, as well as what was happening within the libraries, asking "What do students *really* do when they write their research papers?" (p. v). The process involved a number of key elements. Academics were asked how they expected students to locate information for their assignments, as well as what kind of support they thought librarians could provide to help achieve this. Students visiting the reference desk were surveyed on the assignment they were working on, why they were visiting desk in connection with it, and what they hoped to achieve with their query. Library website use, its design and whether it was suitable for information seeking needs was discussed using design workshops. Learning space use was studied via interviews, photo diaries and mapping of campus visits, with design workshops to create ideal spaces. Some students were also asked to participate in retrospective research interviews where they were asked to draw a picture of how they completed their last assignment, describing the process as they drew. Photo diaries were compiled by providing students with disposable cameras and a list of 20 requests for images, some very simple e.g. the computer they normally use in the library, and others were a little more abstract e.g. "something really weird" (p.

41). The students were then interviewed after returning the camera for processing. The combination of the more obvious and the more odd or fun questions helped the researchers learn more about students' lives and priorities outside of using the library, painting a bigger picture of where the library features (or doesn't feature) in their day. The mapping process asked students to log their movements throughout one day, with two rounds of collecting data focussing initially on campus students, then latterly off campus students. Adding the mapping data to the photo diaries created an overall summary of just how complex and short on free time Rochester students' lives were: their days were complex and often had to be carefully planned to accommodate personal study time. In the library space design workshops, students were first asked to design their ideal library space, with no limitations on what it included. Architects used the data to inform their new designs of library space, but populating the space was outside of their remit, so the researchers asked students to create their own layouts of the proposed floor maps of the new space using scale paper versions of a wide range of furniture options. Data from the design sessions helped prevent library staff making mistakes in the layout, such as placing soft chairs near large windows instead of the study tables students wanted there to make sure they had enough natural light for studying. The research as a whole was more than an exercise in library user experience, it was a study of campus life as a whole; the data allowed the library to modify and improve space and services to meet student needs more appropriately and fit into their lives better.

The ground-breaking nature of the research at Rochester helped generate and support research at other universities. The ERIAL project (Ethnographic Research in Illinois Academic Libraries) (Duke & Asher, 2012) conducted at 5 universities in Illinois partially based their method on the work at Rochester, adapting photo diaries, mapping diaries, retrospective research interviews and the web and space design workshops for their own purposes. However, they added further tools to gather data including research journals and cognitive mapping tasks, looking at space, services and overall library experience. The research journals were designed to learn what kind of activities students

were undertaking in connection with their assignments over the course of one semester, and where and when they were undertaking them. The cognitive mapping technique is a deceptively simple method, where students are given a sheet of paper with 3 different coloured pens and asked to draw a map of the library from memory over 6 minutes, changing the colour of their pen after a two minute period. The change of colour indicates what area of the map was drawn first, and thus which areas of the library the student was most familiar with or was most important to them. Anything missing from the map indicated where there may be way finding issues or space problems in general.

The project findings demonstrated students had a limited understanding of library resources and citations, little skill in finding and evaluating information/resources, and a lack of organised search skills, and rarely referred to library staff for support in spite of admitting they struggled to find useful information for their assignments. Students did not know what a librarian's role was. Those students who had referred to a librarian demonstrated improved search skills, suggesting a need for improved promotion and the support of academic staff to increase their visibility and accessibility. With regards to space, the methodology helped break down some preconceptions such as age being a factor in preferences for low noise levels in study spaces.

The ERIAL project has become an influential piece of research itself, particularly with the expansion of the methods used: cognitive mapping is not a new research tool, but it was new to library research at the time, and one that has been adapted successfully in other library research since Duke and Asher reported their findings (for one example of mapping including a number of examples see Lanclos (2014)). The project also incorporated a tool kit for others to carry out their own research (Asher & Miller, 2011).

Delcore et al (2009) were inspired by the Rochester research to conduct their own work at California State University, Fresno. The demographics at Fresno State were very different when compared to Rochester, with a large Hispanic student population, more students from a low income family enrolled, and most students living at home (80% of Rochester's student body lived on campus compared to 5% at Fresno State). The Fresno State research employed similar methods to Rochester i.e. liaising with academics for input, space and web design workshops, but they also added new ideas to the design, and wanted to learn more about student life as a whole, beyond the campus. They introduced workshops requiring participants (both students and library staff) to create plays of specific scenarios. The research also utilised 'bootlegging workshops' requiring participants to create ways to deal with specific problem scenarios: Delcore et al use the example of asking participants to list any type of person who could use a library followed by asking them to list all the different types of technology they used themselves and why. Each person/technology type were listed on separate cards, each participant sorted into groups and each group given one card of each type to create a scenario where the two might interact and act it out. Additionally students on an ethnographic method module were recruited to be involved in the project as a whole, helping to engage students to participate in workshops, carrying out observations and interviews, and analysing the data from all elements of the project.

The research revealed several important issues, again breaking down many commonly held preconceptions: observations showed that the idea of students multi-tasking was a myth, and students would rapidly switch tasks rather than trying to achieve everything at once. Space was concluded to be dependent on inhabitant interpretation creating meaning as opposed to space creating meaning. Library services were perceived as lacking because they didn't match the ease of use provided by services students were used to using in other settings, such as purchasing refreshments at Starbucks: moving from one desk to another to another to locate the right kind of support or information did not match the nature of single desk support experienced elsewhere.

Wu and Lanclos (2011) conducted research into how they could improve the virtual and physical spaces at the University of North Carolina at Charlotte at the J. Murrey Atkins Library, using a Usability Task Force (UTF) team and the Library's recently appointed anthropologist. Students and staff volunteered to design their own ideal library website, and first floor of the building, drawing or making list of features, and then were interviewed afterwards. The physical space research additionally used observations of user behaviour, and virtual and physical easels to collect data from a wider range of students on features they were happy or unhappy with in the building.

With regards to the website design feedback, the UTF created a list of 13 tasks the website needed to be able to deal with. Further usability testing sessions were set up with screen capture software to monitor how people used the website to deal with task list, with a volunteer from Library staff on hand to watch and make notes. Students were given 30 minutes to deal with all the tasks, and if they didn't complete them the test was ended anyway. The screen capture of the test was also broadcast live in a separate room so that any staff could watch and make notes. Following the testing, the UTF looked for potential solutions to usability problems on other websites and passed them to Library's webmaster with a companion report from the anthropologist. Further usability testing was carried out with a mock-up of a modified website and some printed/laminated examples of widgets and asked if they'd be useful or not, and the use of website was again observed. The research resulted in a new website, followed up with regular design modifications.

With regards to the physical design of space on first floor of library, the intention for the space use and the furniture it housed didn't match, so the intention was to redesign the space using student feedback to inform desired usage. An additional issue was identified during the interview process: the Library housed 4 support desks on the first floor, confusing students who would just go to the nearest one to get help. "They were willing to be told where to go, but unable or unwilling to figure

out where to go ahead of time" (p. 380). Comments from the easels were grouped into overarching themes e.g. computers, furniture. The most common comment was on the provision of longer opening hours (ideally 24/7), followed by computer issues, refreshment requirements, and noise levels. The research resulted in modifications responding to the concerns and feedback from each set of data, including improvements to the amount of natural light and an increase amount of comfy movable furniture on the first floor.

The pieces of research above utilise a complex combination of research aims and methods to collect extensive, revealing data, but the scope for using ethnography can be more focussed without being any less revealing. One of the most common research focus points is learning about and assessing library spaces.

Library space assessment

In assessing library spaces, research falls into several categories: assessment of new builds/designs, assessment of old spaces to feed into new design plans, and learning about particular kinds space use to create space or usage pattern typologies.

In preparation for a renovation of library facilities at Wesleyan University, Hobbs and Klare (2010) hired Nancy Fried Foster of Rochester fame (Foster & Gibbons, 2007) to train staff to carry out research into student requirements. They utilised three methods drawn from the Rochester research with a different participant set for each: photos, campus mapping and design drawings. The photo elicitation element brought about interesting discussions from unusual prompts. Students were required (amongst other more standard prompts such as their favourite computer in the library) to take a photo of their favourite shoes, leading to a discussion with one low income student over how he had to save his money to purchase fashionable clothing and footwear, and thus the (free) library resources were of particular importance to him.

Campus maps were used to plot student activities, and were followed up by inviting participants in the mapping process to an interview. The maps led to discovering that each student's day is filled with very organised and purposeful study and club/volunteering activities, with little time for socialising or serendipity. Lastly, the students participating in the design drawing process were given different instructions to redesign the room they were housed in for the drawing activity as a group study space, a general study space, or a non-specific space. Students almost always incorporated natural features into their designs (e.g. plants, water features, elements that mirrored photo survey preferences of students' personal study spaces), changed the lighting to be softer, incorporated refreshment facilities, and furniture for both group and individual studying. However, the methods also brought out a deeper understanding of space requirements: students wanted a variety of spaces to suit their purpose for specific tasks, going to different libraries on campus to match their intentions; they wanted somewhere comfortable and homey for more productive studying; and they wanted privacy, a way to create their own personal space within the library environment. Many elements students pointed out as important to them had not occurred to the researchers prior to meeting with participants, and would not have been easily discovered (if at all) outside of the methods utilised.

In contrast, Bryant, Matthews and Walton (2009) employed ethnographic methods to learn how new spaces were used at the University of Loughborough's Open³ where previously primarily quantitative data had been collected. Bryant used unobtrusive observation (i.e. not declaring to the occupants of a space that you are carrying out observational data collection) to collect naturalistic data. To ensure the research was ethical the researchers placed notice of the research occurring on the library's website. The new space on the entrance floor of the library was open plan, incorporated a pre-existing café, and had different rules compared to the standard library spaces available outside of it e.g. food and drink was allowed in the new space but not in other library

areas. Using observations allowed Bryant et al to develop an understanding of the types of use the new spaces were supporting and whether the goals of creating Open³ were met: data demonstrated that collaborative studying was frequent (as had been hoped for when the new design of the space was finalised), but could have been improved in terms of furnishing provisions for computers. Individual study in the new space was more common than expected in spite of feedback suggesting it was too noisy an environment to work in: survey feedback had also suggested quite/silent areas in the library were *too* quiet which might imply those using the new space weren't as comfortable in the noise levels of the more traditional spaces. The extension of café facilities into the library space saw increased serendipitous social encounters between library visitors, and use of the space for breaks as well as study purposes, although visitors still seemed to use the space primarily for study purposes (noise levels were reduced outside of mealtimes). Such social activities inevitably sometimes led to behaviour classified by the research as intrusive or 'intruding upon the work of others using the space' (p. 12). Observations also helped the researcher assess what kind of technology use was occurring in the space: laptops were used for messaging friends and colleagues and listening to music as well as studying. Some demographic data was also noted during observations, implying mature students were less likely to use the new space and the occupants were primarily undergraduates. Male students were also observed more often. It's important to note that observational data is very contextual, and Bryant et al acknowledge this fact, but the data collected also provided important additional information that may have not been obtained formally otherwise.

In a comparatively simple use of observation to aid planning for further research, Applegate (2009) used the method to create quantitative data on space usage at Indiana University Purdue University Indianapolis. Observations were scheduled at specific times throughout the last four weeks of the fall of 2007 and spring 2008, and logged time, number of people using a specific space by gender, the number of groups and their sizes, and the number people using laptops. Rather than monitor

space use by the number of people inhabiting it, they were monitored by percentage of capacity used, a decision reached based on the way students would maintain a comfortable level of privacy and personal space around them when finding a seat (any capacity above 50% was considered 'notable' (p. 343). The observations revealed, amongst other data, a strong gender imbalance in library and laptop usage. Men were a slight minority on campus at that time (42%), but a slight majority in using the library at 53%, with some variation in spaces. Some spaces were considered more secluded with more individual users, but also housed a higher number of males (61%) leading to concerns that, while usage of men should not be discouraged given statistics on the time they spend studying, individual women may choose to sit in a more open space for their own personal comfort. At a comparatively simple level then (to, say, Bryant et al (2009)) , observations can be used to generate numeric data that can aid decisions on further research or advise on potentially problematic spaces. While using observations to generate numeric data doesn't necessarily generate the depth of data observations usually provide, in this case it does demonstrate how versatile and informative observations can be (see also work by Paretta and Catalano (2013) for use of observation to gather numeric data).

Typologies feature in two papers of particular note. Harrop and Turpin (2013) used a combination of qualitative and quantitative methods to create typologies of attributes connected to informal learning space preference and use. They drew on observation as a method to create quantitative data, using it to learn about a number of areas across all Learning Centres at Sheffield Hallam University. They logged the number of spaces (and the number in use), the furniture used, information on how many people were working together or individually, what they were using (i.e. computers, mobile devices, books etc.), if refreshments were being consumed, and also logged noise levels by decibel. They could also log anything of interest/importance outside of these remits, but the primary purpose of the observation was to generate numeric data. The qualitative element was a modified version of selected mapping data methods from the Rochester research (Foster &

Gibbons, 2007): Harrop and Turpin asked participants to either complete a coordinate mapping exercise marking where they had been and planned to go on campus on the day of participating in the research, or complete a photographic mapping exercise providing images of their favourite places on campus, or something they'd like to see changed/modified in some way and why. Each participant was interviewed about the data they had collected. Data in the qualitative phase targeted students in more central areas of each campus rather than specifically focussing on the Learning Centres. Based on the data retrieved, nine typologies of "learning space preference attributes" were developed (Harrop & Turpin, 2013, p. 64) allowing anyone preparing to undertake their own learning space assessments and modifications to consider where their space could be modified, improved or even changed. Typologies linked up to: destination (which could often be dependent on schedules beyond learner control), the identity of spaces and whether they are communicated successfully, conversations i.e. collaboration within groups, community (social use of learning spaces, serendipitous meetings within learning spaces), retreat (the need for privacy), timely ("just in time and on demand access" (p. 70), human factors (as in ergonomic relationships including temperature, light, desk size), resources e.g. IT facilities, and refreshments.

Similarly, McKay and Buchanan (2014) investigated learning space use at Swinburn University of Technology to learn more about whether the current design of their library helped groups study: they had seen an increase in group use because of the changing module demands on assessed collaborative study. Initially McKay and Buchanan also carried out numeric checks of the Library's space, including a general headcount that also included checking group sizes, use of mobile devices, and library resources. The second phase was observing group use more closely, examining the types of activity each group undertook, what kinds of areas they used and how (including furniture selected and whether they modified the layout at all), computers and mobile devices utilised, and how the space influenced and impacted on how they interacted and shared information between group members. The data was used to create group typologies, which then fed back into further

observations: each group type was observed to study how members interacted with each other within the group and the spaces available to them, whether they configured the space or it configured them and (possibly) modified their actions. Amongst other findings, it was revealed that while computer spaces were important to most group types (or members within those groups performing specific tasks), larger groups were forced to use them in inappropriately configured spaces with no scope to modify them, meaning there was more traffic between members, some were excluded from collaboration, and communication was sometimes difficult.

Student behaviour

Study behaviour within academic libraries can be difficult to pin down, but several studies have attempted to do so, primarily using a variation of observational data collection. Suarez (2007) carried out participant observations at Brock University, in James A. Gibson Library. His role as both a student and a member of staff meant that he could approach the research from both perspectives, hence he considered himself a participant in the use of the library while he conducted his observations: he carried out normal student activities contributing to his own research as well as observational data collection. The observations were used in tandem with semi-structured interviews to gather preliminary data about the level of engagement students experience while using the library: he wanted to know whether were they actively studying in the library or using it as a temporary space between classes. Measuring engagement is difficult, but using existing literature Suarez grouped them into engaging (i.e. reading and writing, revision, collaboration with other students on assignments), social (i.e. talking with friends on social topics, laughing and joking, sleeping, using phones, consuming refreshments), or leisure (i.e. games, listening to music). Suarez is very transparent about the pitfalls of his data collection. He intended it to evolve as he learned more about learning behaviours, and realised that where he initially ignored some library spaces because they were too noisy, they could have potentially provided some useful data because of the variety of uses and behaviours manifesting. The semi-structured interviews employed a set of open

ended questions for the main discussion, but also some additional prompts to help keep the discussion going. The interviews when used alongside the observational data could then help confirm or deny what he had seen and aid the analytical process of the observations. He concluded that the library is used in part because of its atmosphere, and students arrive with the intention of studying: social and leisure activities are present, but they are usually seen alongside engagement activities.

Ethnographic methods are also useful to help focus research on specific library user groups. Regalado and Smale (2015) researched students at City University of New York (CUNY) living away from campus and commuting in every day. The researchers were concerned that commuter students had very restrictive schedules and limited time to study, and thus whether the libraries across the six campuses met their needs successfully. To learn more about their study behaviours, Regalado and Smale used three methods: mapping diaries to gain an overall picture of a typical day for each participant (which included times dedicated to each activity); photo surveys requiring photos of their favourite and least favourite spaces on campus for studying, as well where they study when at home; retrospective process interviews for essays they had submitted and received a mark for, if possible, incorporating information about how they approached and completed the essay from the moment it was assigned to them. The resulting data logically demonstrated that students had different preferences and needs according to their home life, but the overwhelming requirement was to have access to a “serious’ library” (p. 903) with an atmosphere and design conducive to studying. Commuter students often had obligations and family at home that severely restricted study opportunities because of the level of distractions and noise that surrounded them, and the library was thus of great importance to them. Some students found the main library at their home site provided what they needed, often with a preference for individual study carrels for privacy, while others would study at specialist libraries on their campus whether the specialisation matched their own topic of study or not. Specialist libraries had a specific user base, with fewer

users visiting than main libraries and thus more likely to engage in study behaviours with less socialising, so the students interviewed would find them more conducive to studying. Opportunities for socialising were also sometimes limited to the time students spent on campus, and the only free time they had would be spent in the library, thus creating a need for some social use of the library (something that students preferring peace and privacy would argue against, especially if refreshments featured in the social activities). The researchers concluded that while there are similarities between commuter and campus-based students (as demonstrated in research by other universities), the data on CUNY commuter students' home life and personal study spaces demonstrated the importance of solo studying and private spaces in the library, which contrasts with many modern academic library designs (see McKay and Buchanan (2014) again).

Evaluation of resource usage

Ethnographic methods are particularly useful in assessing off-campus services and resources such as websites and digital libraries. In an unusual (if now technologically dated) piece of research, Pan, Gay, Saylor and Hembrooke (2006) assessed the use of a digital library of kinematic models in two different subject undergraduate classes at Cornell University. The classes had access to four modules with different types of materials: text based, QuickTime movies, Java simulations, and stereolithographic files (used for printing/creating 3D models of objects). They assessed the use of these modules in a geometry class and a robotics class utilising a mixed methods approach including recording and observing how the students were taught the content and use of the library and how they responded to that teaching. Screen capture software and a microphone were also used in the geometry class to learn about the user experience of the resources, the method replaced with surveys in the robotics class. The researchers used the data to learn about module preferences of each class as well as the formatting of the library itself. The screen capture software in the geometry class revealed in one case a pair of students collaborating when using the Java simulations with great enthusiasm before the class had started. The observations demonstrated high levels of

interest in and concentration on the library content, and the variety of content was largely looked on with approval in survey results. The surveys also produced negative comments about usability of the content and bugs appearing in the software/models.

White (2009) in the second (qualitative) part of a two part piece of research investigated the use of the library web pages for Rutgers University using interviews with a mixture of post and undergraduate students at different stages of their degrees. The interviews were used to flesh out the data from the quantitative section of the research to aid the redesign of the library's website. Students were asked about their use of library and non-library web services (i.e. Google and Google Scholar, Wikipedia etc.), their interactions with librarians, the type of resources they use in their research, citation/article management techniques, study methods and whether they involved collaboration, and, if at postgraduate level, about writing and publishing their own articles. The participants largely wished to remain independent, and while they appreciated the support and teaching librarians had provided on using library resources, they preferred to be able to find their own answers and work independently of each other. Undergraduates had varying knowledge of what information was available to them via the library, with many not using the library resources at all and relying heavily on Google (and even sometimes paying for articles they could usually obtain for free via the library), although their awareness of library resources seemed to increase as students neared the end of their degree. Graduate students had better knowledge of library resources for their research, but use of reference management software was limited and rarely used.

Other uses

Ethnography lends itself to a huge variety of uses beyond space evaluation, resource and behaviour considerations. Pashia and Critten (2015) innovatively used ethnography as a library induction tool, asking students to carry out observations and create a map of the library on a whiteboard in front of

the class, even though it was their first visit. The map would typically contain information about which door they had used to enter the building and what they had noticed as they travelled to the induction room, with the librarian asking students watching for feedback on whether they had noticed what was included or had any additions to make. The information of what was included in or missed out of the maps helped the library staff learn about what services needed promoting or clarifying during the rest of the induction. Van Beyen, Pettijohn, and Carrel (2010) used observations to learn more about how people moved through their library space from the entrance, interpreting the data in relation to pedestrian choice theories so that they could experiment with layout near the entrance to promote greater interaction with services and resources. Seadle (2000) talked about using ethnography in library research to learn more about each micro-culture of users of digital libraries and directly relates the nature of this type of research to the origins of ethnography in anthropology. Foster and Lindahl (2008) looked at faculty perceptions of their institutional repository with the aim of improving engagement with and understanding of its purpose. Ethnographic research doesn't have to be limited to these areas, it can be used to learn about specific user groups of libraries, it can be used to help engage library users in helping to develop and promote services. It is a case of finding a question that you don't know how to answer, but you know can be answered, with time and commitment.

Summary

In conclusion, ethnography-based methods are powerful tools. Much of what we don't know about how academic libraries are used can be discovered via ethnography, just as anything we do know can be supported with data gathered using these methods. While it can be time consuming to carry out such detailed qualitative research, and researchers often need to learn new techniques to see beyond the surface of actions observed, Bryant (2009) emphasises just how informative the data can be. She strongly advocates anyone wishing to conduct research in libraries consider using ethnographic methods. Ideally ethnography should be conducted as ongoing research, not as

individual stand-alone pieces of research, to ensure we as library staff are continuously engaging with and learning from our visitor. The richness of qualitative data ethnography provides does more than supplement the quantitative data academic institutions are more familiar with collecting about themselves, and answers questions we didn't know needed asking. It allows us to see more about what happens in practice, which often doesn't match how users perceive or report on their own actions. Even more ideally libraries should work with the collaboration and/or guidance of an anthropologist. Seadle (2011) provides some advice on how to create a research question you can successfully answer when starting your own ethnographic research. Asher and Miller (2011) talk the librarian through the entire research project process, from thinking about what should be investigated through to data collection and analysis, to using the data to make suggestions for changes and presenting the information to any stakeholders. The scope of ethnographic method use in academic libraries is limited only as far as the extent of the researcher's imagination and desire to learn about academic library use and the cultures that inhabitant them.

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