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Methods for Studying the Use of Public Spaces in Libraries

Les méthodes d'étude de l'utilisation des espaces publics dans les bibliothèques

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Abstract: This review examines selected methods for studying the use of public spaces in libraries, including mental mapping, observation, questionnaires, and interviews. Although use-of-space research often features more than one method of inquiry, observation (in its various forms) is a key method. Information gathered from use-of-space research can be used for a variety of purposes, from feeding into design and renovation projects to contributing to library promotion and funding initiatives.

Keywords: libraries, library use studies, space utilization, methods, library users

Résumé : La présente analyse passe en revue les méthodes choisies pour l'étude de l'utilisation des espaces publics dans les bibliothèques, y compris la cartographie mentale, l'observation, les questionnaires et les entrevues. Bien que l'utilisation de la recherche spatiale puisse être souvent approchée par plus d'une méthode d'enquête, l'observation (sous ses différentes formes) demeure une méthode clé. Les informations recueillies lors de l'utilisation de la recherche spatiale peuvent être utilisées à différentes fins, de l'exploitation des projets de conception et de rénovation jusqu'à la contribution à la promotion des bibliothèques et des initiatives de financement.

Mots-clés : bibliothèques, études sur l'utilisation des bibliothèques, utilisation des espaces, méthodes, usagers des bibliothèques

Introduction

Reading, playing, browsing, searching, writing, kissing, fighting, meeting, studying, computing—capturing the varied activities that occur in the public spaces of libraries requires a remarkably flexible and varied set of methods. Researchers undertake use-of-space projects to understand the use and meaning of library spaces. Results of this research can inform resource allocation, the development or redevelopment of library spaces, campaigns to market library attributes and gain community support and funding, or simply library staff perceptions of user needs. While some may argue that library physical spaces are losing their value as collections are increasingly digital and therefore “placeless,” libraries as places continue to be important to a range of communities. Indeed, large, impressive library buildings across North America have become icons, including architecturally noteworthy buildings such as the Bibliothèque et Archives nationales du

Québec, the Vancouver and Seattle public libraries, and the Perkins Library at Duke University. Knowledge of how the physical spaces of libraries are used expands our understanding of the many ways that libraries contribute to their communities, capturing information about library roles and functions that otherwise go unrecorded.

Exploring the use of library spaces answers the call for research in several areas, including expanding our understanding of how patrons experience the physical space of buildings (Lees 2001), understanding the role of reading and “library as place,” and approaching library research from the point of view of “the library in the life of the user” (as opposed to “the user in the life of the library”) (Burke and Martin 2004; Wiegand 2003). These calls express a need to study library usage from a patron-centred perspective. Ladhari and Morales (2008) demonstrate that patron valuation of libraries hinges on perceptions of the library as place, highlighting the critical importance of this area of research. In addition, one of the most highly rated core competencies for public librarians is to “create a welcoming, useful, responsive library environment to encourage use and strengthen support of the library by community” (Helmick and Swigger 2006, 63).

This review examines a selection of research methods, including mental mapping, participant observation and behaviour mapping and tracking, interviews, and questionnaires; these methods are commonly used in conjunction. The study of the use of space has been applied in both libraries and other types of spaces; consequently, many of the methods covered here find their origins in disciplines such as human geography, psychology, and anthropology. Although the particular purpose of use-of-space research varies by project, such studies in libraries commonly answer questions about the experience of using library spaces and the role and meaning of such spaces for patrons and their communities.

Use-of-space research in libraries

Use-of-space research in libraries feeds into several bodies of research. These include research concerning the library as place (Engel and Antell 2004; Shill and Tonner 2004), the social-capital contributions of libraries to communities (Hillenbrand 2005), and the role of libraries as third places (that is, informal gathering places that are neither home nor work or school; see Oldenburg 2003) (Waxman et al. 2007). As an investigatory approach, use-of-space research has been used to examine various questions about libraries, including whether public libraries are functioning successfully as public places (Leckie and Hopkins 2002; May 2010) and whether public libraries are more successful public spaces than large bookstores (McKechnie et al. 2004). McKechnie et al. (2006) used this approach to examine behaviour and misbehaviour in public libraries and Waxman et al. (2007) used it to examine the potential contributions of coffee shops to the place of academic libraries.

The unique qualities and situation of each library means that results of studies assessing the use of library spaces are not necessarily generalizable among

libraries. A study of the public places of six Canadian public libraries, for example, found that although each library was functioning successfully as a public place, each did so in a unique way (May 2010). Community demographics may affect how library spaces are used; for example, Jue, Koontz, and Lance (1999) described how libraries situated in poor neighbourhoods had more in-library use than libraries located in other neighbourhoods. Each library is a unique place shaped by factors that include the library building, its physical location, and the community it serves. A library located near a high school may be used by students as a place to go during lunchtime. An academic library serving a university where group work is frequently assigned may have more students working together at tables than alone at study carrels. The physical structure itself may also dictate uses: An older library building with limited accessibility may see reduced use by those with mobility issues, while a public library with a large, well-equipped children's area may see increased use and longer visits by families with children.

It is important to note that use-of-space research in libraries provides a meaningful analysis only of the use of library resources that are directly related to the physical space, such as seating or tables. Use-of-space research typically ignores, for example, the online uses of the library. Use-of-space research may document a patron physically browsing for books in the library but overlook those who browse the library's online catalogue. It would make note of those who sit at a library table to read a physical book but miss those who use a library or home computer to read an e-book. The study of use of space in library provides a snapshot of certain aspects of library usage and meaning.

Mental mapping: Visual representations of library spaces

The term *mental map*, situated in the broader category of cognitive mapping, refers to an expression of an individual's perception of a physical space (Jacobson 2006). This method, used most frequently in psychology and behavioural geography, is useful in improving understanding of the link between spatial perception and behaviour (Kitchin 2001; for more information on the research value of cognitive mapping, see Kitchin 1994). In one of the simplest ways of implementing this method, individuals are asked to draw a map of a particular space or a route between locations; the resulting maps are examined and compared (for a more detailed discussion of this technique for use in academic libraries, see Horan 1999). Results may be aggregated into a map of the area which represents, via shading or another visual technique, the proportionate number of times a spatial element appeared on respondents' maps (Kitchin 2001). Weaknesses of this method include inaccuracies and unreliability in terms of the respondents' spatial knowledge or their lack of knowledge of cartographic conventions or both. In addition, there are challenges involved with interpreting and comparing maps, and respondents commonly present only a proportion of the spatial knowledge that they have (Kitchin 2001). Because of these weaknesses, this technique is rarely used in isolation but rather is frequently used in conjunction with other methods of inquiry.

James (1983) found that mental mapping used in an academic-library setting was a practical and useful method for generating information about patron perceptions of library spaces. For example, patrons tended to represent preferred or more frequently used locations in the library at a larger scale, while unknown or less frequently used areas of the library were either omitted or represented in little detail. In this case, the results generated by mental mapping were useful for the library in three ways: They fed into the reorganization of the library, they convinced the library of the importance of maintaining non-uniformity in the types of seating provided, and they prompted changes in user education to emphasize the areas of the library which were relevant to library patrons—as opposed to teach patrons about every aspect of the library. A more recent study used mental mapping as one technique to explore understanding of territory, place, and identity in relation to the Muenster City Library (Song 2007). The researchers provide very little detail about how the study methods were implemented, but they present interesting results indicating that perceptions of this library were determined by context and evolved with time and by engagement with the physical place.

Although mental mapping is not a method in common usage in library research, existing reviews find that it has potential for use as a way of expanding our understanding of how patrons make sense of library spaces (James 1983; McInnis 1984). The mental maps of libraries that patrons draw reflect their experiences in using the library spaces, including what areas are important to them and what they expect to find there. Mental maps may indicate the aspects of a space an individual is aware of and remembers, but they do not necessarily reflect an individual's ability to use that space (Horan 1999). In summary, mental mapping is a method that is low cost, easy to implement, and that produces results that are useful to library management; those results, however, are limited by their specificity to the study library and by the challenges of analysis.

Observation: An overview

Observational research is used to record behaviours of those being observed, but it does not deal with their opinions or beliefs about the events or actions with which they are engaged (Sommer and Sommer 2002). This is a method that, at least as of 2005, was not common in Library and Information Science (LIS) research; in that year observation was reported as a data-collection technique in 3.5% of studies in high-profile LIS journals (Hider and Pymm 2008). Different types of observation are often characterized by the level of involvement that the observer has with those being observed and with the method of recording observations, which is typically either structured (where the behaviour categories of interest are determined beforehand) or unstructured (Bottorff 2003). Observation is typically characterized as a qualitative method of inquiry, though data may sometimes be quantified, particularly when structured methods of observation are employed (Platt 2004). Advantages to undertaking observational research include the fact that data may be more accurate and detailed than that collected by other means (such as interviews and questionnaires) as the researcher is

recording the information directly, and that information can be recorded for those who cannot speak for themselves (such as very young children; see McKechnie 2000 for a discussion of methods for observing pre-school children). As it is a record of what people do rather than what they say or think they do, observational information may be used to check or supplement information collected by other means (Foster 2006). In addition, observation is an economical method of investigating behaviour (Sommer and Sommer 2002), and results can feed into the design of interview questions and questionnaires aimed at further assessing the use of the space (Given and Leckie 2003). Disadvantages of this approach include the facts that some types of behaviours cannot be observed (e.g., those commonly only practised in private), participants may change their behaviour if they are cognizant of being observed, the observations must be filtered through the lens of the observer (and so cannot be considered a direct representation of reality), and observational research is time consuming. (For a more complete discussion of observation as a research method in LIS research see Baker 2006; Gorman and Clayton 2005.)

Overt Observation

Overt methods of participant observation are generally characterized by the fact that the observer acts as an active participant in the study group and those being observed have given permission to be studied. Levels of observer participation vary from complete participant, where the observer is a full member of the group being observed, to participant/observer, where the observer has a lesser degree of participation (Platt 2004). A benefit of overt observation over unobtrusive methods of observation is the opportunity to better understand behaviour by asking questions of those being observed (Platt 2004). This method is useful for gathering detailed observations about smaller groups of people if it is convenient to gain permission to engage in observation.

In library research this method has been used to observe patrons engaged in library programming. McKenzie et al. (2007) used participant observation, along with interviews and focus groups, to explore use of library programming space by two different groups of library users: story-time participants and individuals involved in a knitting club. This research revealed that the social realm created in the program room was unique compared to social activity taking place in other areas of the library. For example, programs provided opportunities for relationship development among library users and for sharing of resources such as knitting patterns or children's hand-me-down clothing (McKenzie et al. 2007).

Challenges associated with this method differ with the context of the observation. For example, McKechnie (2006) used overt observation to examine the behaviour of babies and toddlers during story time at several public libraries. Observations were analysed to reveal if, and how, these programs benefited the children involved. Recording observations for these relatively large and noisy groups proved challenging. Researchers reported dealing with this issue in several ways, including using three observers and several tape recorders. The

number of observers was limited to three to keep the observation from becoming overly intrusive.

Unobtrusive observation

In unobtrusive observation, there is no interaction with either the people or the actions under observation (Angrosino 2003). This method is also known as naturalistic, complete, non-reactive, or non-participant observation. The distance the researcher places between him or herself and those being observed provides the benefit of reducing researcher bias and prevents some of the difficulties of exiting the observation that can occur with participant observation (Baker 2006). This same detachment is also a drawback because refraining from interacting with the research subjects may limit the conclusions that the observer can draw. Given and Leckie (2003) reported another challenge to unobtrusive observation: After several days of public-library observation, some regular patrons began to notice the observation and note-taking activities of researchers.

Unobtrusive observation has been used to explore several aspects of library use in academic libraries. One such study examined the use of a large open-learning/social space in the library while simultaneously evaluating this ethnographic method for its use in a library context (Bryant, Matthews, and Walton 2009). Results identified the success of this space as a flexible learning environment that supported a range of student activities and made a unique contribution to the student learning experience. In addition, the authors concluded that this method has potential for library administrators who wish to evaluate the design aims and objectives of library spaces. Another study of an academic library used systematic observation of library users to explore how areas of the library were used over time (Applegate 2009). Observational information recorded during this study included each user's location, gender, use of a laptop, and whether the user was in a group or alone. Some of the results of this study are that traditional carrels were highly used and that patterns of library use differed by gender and by time of year. Based on these observations researchers were able to determine that, on campus, the library was the preferred location for students engaging in academic activities not immediately associated with a class and that, when compared to university demographics, men were over-represented among library users (Applegate 2009).

Unobtrusive observation has also been used to study patron use of public libraries. McKechnie et al. (2004) used it to compare two different types of spaces: public libraries and book superstores. Observations of patron activities in public libraries were recorded and then compared to results from similar studies carried out at book superstores, allowing researchers to identify differences in usage patterns. For example, while people undertake many of the same activities at public libraries as at book superstores, patrons tended to treat libraries more as their own space by bending the rules, moving furniture to suit their needs, spreading out their belongings, staying for longer periods, and engaging strangers in conversation. In another study some of these same researchers used unobtrusive observation to examine the process of social interaction in a public-library setting,

specifically in terms of compliance with library rules of conduct (McKechnie et al. 2006). To strengthen the methodology and thereby achieve more reliable results, observations were carried out at a variety of locations, researchers engaged in regular peer debriefings, and data were reviewed for anomalous findings. Social interactions, including those that take place at the public library, are complex processes, and the observations collected and analysed during this study helped to illustrate some of those processes. For example, although many instances of rule breaking or bending were observed, posted rules of conduct were followed by the majority of patrons. In the instances where behaviour in the library became an issue, patrons—not staff—were more frequently observed to actively enforce rules of conduct by, for example, “shushing” other patrons. Staff members were observed to rely more frequently on passive methods of enforcement, such as eye contact, to enforce library rules of conduct.

Behaviour mapping

Behaviour mapping is a form of unobtrusive observation that generates quantifiable observations of the use of a space. The technique frequently involves an observer recording behaviours on a map within a specified time frame. The basic features of behavioural mapping are the following: a graphical representation of the area observed, a clear definition of the behaviours observed, a schedule of times at which to undertake the observations, a systematic procedure to follow during observation, and a coding and counting system to simplify the observational procedure (Ittelson, Rivlin, and Proshansky 1976). The seating sweep is a modified form of behaviour mapping that records observations in tabular format in which location codes are used instead of a graphical representation of the area under study (see Given and Leckie 2003 for a detailed overview).

Waxman (2006) used unobtrusive behaviour mapping in conjunction with other methods (visual documentation, interviews, and surveys) to examine what physical and social qualities influenced the development of place attachment in three urban coffee shops. By analysing both observational and other collected data, Waxman was able to draw several conclusions about the coffee shops as social spaces, including that outings to the coffee shop constituted a social experience whether or not patrons engaged in social interactions and that patrons with weaker community ties (such as with family, friends, and community groups) placed more value on their relationships with coffee-shop staff than did those with strong community ties.

Given and Leckie (2003) outline the seating-sweep method performed during a “sweep” or walk-through of the area under study. The observer walks through the study space at specified time intervals, recording information about individuals and the activities in which they are engaged. As with other forms of behaviour mapping, a shorthand code is used to facilitate quick and accurate recording of observations. Seating sweeps, in partnership with several other methods of research, were used to assess the use of two large, central Canadian public libraries by Leckie and Hopkins (2002). Results of the seating sweep revealed several facts about patron behaviour, including the fact that the number-one activity that

library patrons were engaged in was reading and that this activity was far more frequently observed than any other.

Visitor tracking

The emerging field of “visitor studies” has made use of visitor tracking, a form of unobtrusive observation, in the evaluation of the use of public spaces, especially museums and art galleries. Observers typically observe one visitor at a time, monitoring movement through the space while recording the visitor’s path and behaviours within the space (Korn 1994). Although it is difficult to find much evidence of visitor tracking being used in libraries, there is potential for this method to be used to investigate the experience of individuals in library spaces. One interesting study involved the examination of a science museum as a learning space (Falk and Storksdieck 2005). Researchers used visitor tracking, along with pre- and post-visit interviews, to determine what variables helped lead to learning outcomes. Contributing factors included motivation and expectation, social mediation, facilitated mediation by others, orientation to the physical space, and prior experiences. The results of such evaluations of a space can serve as a decision-making tool for an institution as well as provide information about the experience of using a space from the visitor’s perspective (Korn 1994).

Although not identified as visitor tracking, similar techniques have been employed in several studies that explored issues of way-finding in public and academic libraries. In a before-and-after study at the University of Chicago, researchers followed participants, all of whom were inexperienced library users, and recorded their routes as they attempted to locate items from a bibliography (Larsen and Tatarka 2008). Participants were encouraged to verbalize their thoughts, and these comments were recorded. No participant was successful in locating their items on the shelves. Results were used to improve signage and organization of the collection. A follow-up study that used similar methods concluded that 4 out of 10 subjects are now able to successfully locate their items. Although more improvement is still needed, the changes succeeded in facilitating the way-finding process in that library. In another study in public libraries, researchers followed library users and recorded their paths through the library to determine how patrons navigate the entry area of the library (Mandel 2010). The objectives of this study were to determine whether way-finding patterns could be elucidated and whether this information could be used to improve way-finding and the advertising of materials and services (Mandel 2010).

Interviews and questionnaires

Although these methods are familiar to LIS researchers, they are discussed here in an abbreviated form because they often play a part in use-of-space research. Frequently they are used in combination with observational methods. In relation to investigating patron use and experience of the space of libraries, interviews and questionnaires can be used to explore how patrons value different spaces in the library, how those spaces are being used, and relationships that may exist between library spaces. Interviews can provide a great deal of detailed

information but are also time consuming and labour intensive because of the time required to conduct the interviews and transcribe and analyse the data (Warren 2004). Questionnaires benefit from a relatively low cost of implementation and, when compared to interviews, from the relative ease with which a large number of people can be consulted (Sommer and Sommer 2002). In addition, by their very design, questionnaires impose structure on the information gathered; a factor which goes some way toward facilitating interpretation (Bookstein 1985). Drawbacks include the difficulty of designing the questions and physical layout of the questionnaires, interpreting the results, and achieving a representative sample of the population, as well as the fact that questionnaires are not as effective as interviews at gathering detailed information (Sommer and Sommer 2002; Bookstein 1985).

Interviews have been used to explore use of space in numerous studies of academic libraries; they have been used to examine the influence of library design on user behaviour and satisfaction (Campbell and Shlechter 1979), to explore the level of student engagement in an academic library (Suarez 2007), and for the first phase of a study examining the information behaviours of students in university spaces, including libraries (Given 2007). Interviews have also been used to explore the role of the public library as a provider of opportunities for leisure (Hayes and Morris 2005). Questionnaires have been used in public libraries to explore differences in usage according to gender (Applegate 2008) and to explore the role of the public library as a public place (Leckie and Hopkins 2002; May 2010). In academic libraries, questionnaires have been used to explore academic-library usage by discipline (Bridges 2008) and to explore the impact of library spaces on student learning behaviours (Webb, Schaller, and Hunley 2008). In another interesting study of the use of academic libraries, Antell and Engel (2007) used questionnaires to examine faculty use of academic library spaces and to discover whether that use was dependent on the age of the faculty member. Finally, in a study that included but was not limited to libraries, one author used questionnaires to study the environments in which studying takes place, the “ecology of study areas” (Sommer 1970).

Conclusion

From individuals mapping space to mapping individuals in space, methods for studying the use of space vary in their approach and in what they tell us about the use of a space. Like in other areas of research, the process of using multiple methods of inquiry is a valuable strategy in use-of-space research. No method in itself can provide a complete description of the use of a space. Combining methods of inquiry is a valuable tool as it brings together information gathered from various sources to convey a clearer and stronger picture of the meaning and use of a space. When data generated by diverse methods suggest similar conclusions about the use of space, those conclusions are reinforced. Conversely, findings generated by different methods may differ; what respondents say and what they do, for example, are not always consistent with each other (Lofland et al. 2006). In one study of public libraries, questionnaire respondents claimed

that the main reason for their library visit was to retrieve fiction or non-fiction reading materials, yet computer use was by far the most common activity observed (May 2010). In this case the use of mixed methods helped reveal that the dynamics of library use were more complicated than would have been apparent if only one method of analysis were used.

Studying the use of space in libraries provides practical information that is useful for evaluating library spaces, but it can also provide information on the role and value of a library as a place itself, independent of the materials held by the library (Antell and Engel 2007). The number of resources in the field of LIS that discuss methods for assessing the use of library spaces is small but growing. There are, however, disciplines where use-of-space research is more established, including sociology, anthropology, geography, psychology, architecture, and planning. LIS researchers should look to the literature in these fields for further insight and experience on implementing methods for studying the use of space.

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