Abstract ''Sweeping'' the library: Mapping the social activity space of the public library 1

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"Sweeping" the library: Mapping the social activity space of the public library[1]

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Abstract

Although libraries are public spaces in which individuals engage in a range of social and informational activities, few researchers in library and information science use ethnographic approaches to study users' experiences in these settings. This article describes spatial analysis techniques used by geographers and other researchers of social space. It examines the ways in which these techniques may be used to map the physical layout of libraries and information centers, and patrons' uses of those spaces. The article focuses on one observational approach (the "seating sweeps" method) used to study individuals' use of central public libraries in two large Canadian cities. In addition to a description of the design and implementation of the method, the article presents some of the study's findings that support the utility of this method for facilities redesign or planning to accommodate patrons' information behaviors and usage patterns and to emphasize the central library as a vibrant and vital public space. © 2003 Elsevier Inc. All rights reserved.

1. Introduction

Like malls, restaurants, and many other social settings, the library provides a public space in which individuals may engage in a range of social and informational activities. In investigating these environs and activities, some library and information science (LIS)

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researchers use a range of ethnographic approaches (e.g., personal interviews and various forms of observation) for studies of users' experiences within these settings. The spatial data collection and analysis techniques used by geographers and other social scientists to investigate research questions relating to shopping malls and other social spaces are currently underused in LIS research, however, and could yield some interesting approaches. In particular, spatial data analysis is a useful method for mapping the physical layout of libraries and information centers to examine the ways that individuals make use of that space. The results of this type of analysis may be used for short-and long-term facilities planning, to match information services to users' information behaviors, or to redesign the social activity space of libraries according to the usage patterns of different types of patrons.

This article examines the use of the "seating sweeps" observational method in a study of individuals' use of public libraries in two large Canadian cities. The full project examines central public libraries and the roles they play in promoting and sustaining a vibrant public culture in today's large cities. The study is situated within the contested public discourse about the importance of certain key institutions, such as the library, in public life. Critics insist that central libraries are passé, a relic of the preinformation age, and are no longer relevant or warranted in the digital age. Others, however, maintain that central public libraries are one of the very few authentic public spaces left, and thus make a critical contribution to the vibrancy of civic life in large cities. Given this discourse, the primary thrust of the research is to investigate the uses and meanings of contemporary central libraries as public places in the context of a North American culture that is increasingly privatized, globalized, and influenced by an ever-expanding array of information technologies.

This article explores, in particular, a corollary research question: What uses do individuals actually make of the public space of central libraries? This question takes up the challenge issued by Loretta Lees (2001), who also has studied large libraries, and who maintains that the academic community has "had relatively little to say about the practical and affective or 'non-representational' import of architecture." Lees suggested that, whereas many scholars have become quite good at theorizing what is happening to and in public space, most have not taken the time to collect any significant data to support or disprove those theories. In keeping with that premise, the purpose of this study is to investigate the actual daily uses of a particular type of public space. Accordingly, the research uses the seating sweeps method detailed in this article (along with surveys and personal interviews, not described here) to assist in exploring the ways in which members of the public use large central libraries. The design and implementation of the method are detailed, and selected data from the findings are used to discuss how the method can be used to examine assumptions about the use of large public spaces. Finally, the article suggests implications of the study's findings for the use of this method in other library or information center–based research. Before proceeding to discuss the seating sweep method in detail, however, it is useful to review briefly the literature regarding the study of social activity spaces, thereby placing this article within the larger context of social science research on social activity and public spaces.

2. Public space and social activity

What are the public spaces of cities? In the not-too-distant past, the answer to this question would have been relatively straightforward and would have included identifiable features where the public is free to mingle in the company of strangers, such as streets, walkways, boulevards and promenades, the market square, parks and public gardens, and tax-supported municipal buildings, such as the city hall, galleries, schools, and libraries. Within the last few decades, however, the notion of what is considered to be public space has become rather murky. The type and variety of spaces within which individuals carry out their daily activities within the contemporary city have changed dramatically: some of the older, established forms of public space have declined because of a lack of funding and a concern over safety, particularly in the central city; the rise of the sub-urban shopping mall and other related spaces (perceived to be public space but actually private, consumptive space) have changed the nature of public space as well. Shopping malls have become a surrogate public space in which many citizens are engaged in a wide variety of pursuits, including shopping, walking, visiting, relaxing, reading, ob-serving, networking with peers and colleagues, hanging out, and engaging in various sorts of resistance against authority.

Given the murkiness surrounding the identification of which spaces are public and which are private or semiprivate, it seems rather futile to attempt to define public space by a characteristic, such as ownership, or a physical attribute, such as openness. Contemporary public spaces perhaps can be more usefully thought of in terms of the activities that take place within them and the sociocultural functions that these spaces perform. Accordingly, for the purposes of this discussion, the description of public space that is most applicable can be found in the work of Zukin (1995), who takes a broad view of public space as a constantly changing context as perceived by the various public and private interests who construct and use those spaces. She focused on the dual notions of public culture and public space, which are intimately linked and are mutually reinforcing. As Zukin noted, public culture and public space are

> socially constructed. . . produced by the many social encounters that make up daily life in the streets, shops and parks—the space in which we experience public life in cities. The right to be in these spaces, to use them in certain ways, to invest them with a sense of ourselves and our communities—to claim them as ours and to be claimed in turn by them—make up a con-stantly changing public culture. . . Yet public space is inherently democratic. The question of who can occupy public space, and so define an image of the city, is open-ended. (pp. 10–11)

Of particular interest in the previous quotation is the phrase ''the right to be in these spaces, to use them in certain ways, to invest them with a sense of ourselves.'' What people regard as public space, what they choose to do in those spaces, and how they carry out their activities have long been focuses of research attention, but different disciplines have taken different approaches as to how to best study the social activities that take place in the various places frequented by the public. Although it would be impossible in this brief article to give an

adequate overview of the ways in which disparate disciplines have studied the uses of public space, a few of the approaches can be mentioned.

3. Approaches to the study of social activities in public spaces

What do people do in public spaces? What interactions do they engage in, what activities do they pursue, where do they pursue them, and how do they conduct those interactions and activities? To answer these questions, scholars from a variety of disciplines (including anthropology, geography, sociology, urban planning, environmental psychology, and architectural design) have come to describe the places in which people's individual and collective behaviors are enacted as "social activity space."[2] This term recognizes that virtually every action or interaction in which human beings are engaged within physical places is an inherently complex social activity. Social in this sense means "of society," and does not take the more colloquial meaning of "sociable" or "gregarious." Even though the activity may, on the surface, be something other than what individuals might consider social (e.g., buying groceries or going to a bank), there are inevitably complex social and power relations at work that both constitute and reproduce the activity, and those relationships are played out within particular spaces, many of them public or quasi-public.

Studying people's social activity space often involves using some type of spatial methodology, including locational inventories and mapping, cognitive or perceptual mapping, and activity tracking, such as with spatial time-diaries, or spatial observations. These methodologies, however, may not be useful for every situation, so the following question frequently arises: What approach and scale are appropriate for studying social activity spaces? Cromley (1999) provided an answer to that question in her excellent overview of the use of spatial data entitled "Mapping Spatial Data." She categorized the use of spatial data into three levels of analysis: individual, community/regional, and institutional. This method is a useful way to organize a discussion of the different types of activity spaces that can be examined and the associated methodologies for investigating them.

Individuals may have social activity spaces that are both private and public. Private spaces are often relatively confined (e.g., a home), whereas public activity spaces are sometimes quite large (e.g., an entire city). Anthropologists and ethnographers have perhaps conducted the most research into the private activity spaces of individuals, often by detailed observation of family activities within their communal space. Observation is used to develop a map of each family member's movements within the space and a detailed record of activities associated with those movements.

Geographers also have done a large amount of work to understand the activity spaces of individuals, including both private and public activity spaces. Much of this research stems

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[2] Also referred to simply as "activity space" (Golledge & Stimson, 1987, pp. 110–113; Walmsley & Lewis, 1993, p. 108). Environmental psychologists and architectural designers are more likely to use the term "behavior setting" (Cassidy, 1997, pp. 45–52; Lang, 1987, pp. 113–125).

from the work of Hagerstrand (1970), who developed an approach known as the "space-time budget" to track what individuals did within their activity spaces, and when and where they did these activities. An example of a recent space-time budget, called personal extensibility, by Adams (1995) is shown in Figure 1. Craik (2000), coming from environmental psychology, used a very similar methodology referred to as "lived-day analysis."

Another technique, cognitive mapping, also has been used by geographers, psychologists, and anthropologists to study individuals' perceptions of their activity spaces. Cognitive mapping is a multidisciplinary approach to investigate how people "learn, remember and process spatial information about an environment" (Kitchin & Freundschuh, 2000, p. 2). One method includes having an individual draw out a representation of his or her activity space, which can then be compared with more conventional maps of the area in question, thus giving valuable insights into how individuals perceive the contours and features of the physical spaces in which they conduct their daily activities (Figure 2). In Figure 2, Ernest's map has a far greater emphasis on the Mission Hill area than does Ralph's map, showing that Ernest is much more restricted in his daily activity space than Ralph, who has knowledge of a more extensive area of the city. The mental mapping approach can yield valuable insights into the constructed meanings that people attach to various environments, the range of their understanding of their complex activity spaces, and the ways in which they navigate within these spaces.

Community and regional activity spaces include neighborhoods, villages, towns, cities, and larger regions, up to the national scale. For the most part, studies of activity spaces within these larger contexts are done via conventional mapping techniques, such as the mapping of particular activity features (e.g., playgrounds), and then superimposing other variables of interest (e.g., households with particular incomes) to gain a sense of the distribution of certain activity spaces and who might use or benefit from the presence of those spaces. In these cases, the conventional mapping techniques used often include the manipulation and use of census data, particularly for larger units of analysis, such as cities and regions. Furthermore, as Cromley (1999) noted, because the spatial data may be at a relatively large scale, conventional mapping needs to be combined with other onsite methodologies (e.g., personal interviews, observation, or surveys) to adequately explore the more detailed elements of the social activity space being studied (e.g., the use of playgrounds by individual families in an area).

Finally, and of most relevance to this article, there are also institutional activity spaces. Because, increasingly, individuals' activities take place in relation to an ever-expanding array of institutional forms, including schools, libraries, recreation centers, churches, government offices, banks, restaurants, cinemas, theme parks, and shopping malls, the study of institutional activity space is of great importance. One large concern about institutional activity spaces is where best to locate them, and so a whole "science" has developed to develop models and algorithms for locational analysis (see, e.g., Ghosh & Rushton, 1987; Sule, 2001). Locational analysis is used for both privately owned activity spaces (e.g., cinemas, retail stores, and malls) and publicly supported activity spaces (e.g., recreation centers, libraries, and schools).

Good locational analysis of facilities and institutions is undoubtedly important, but of greater interest here is the actual activity that takes place within these institutional contexts.
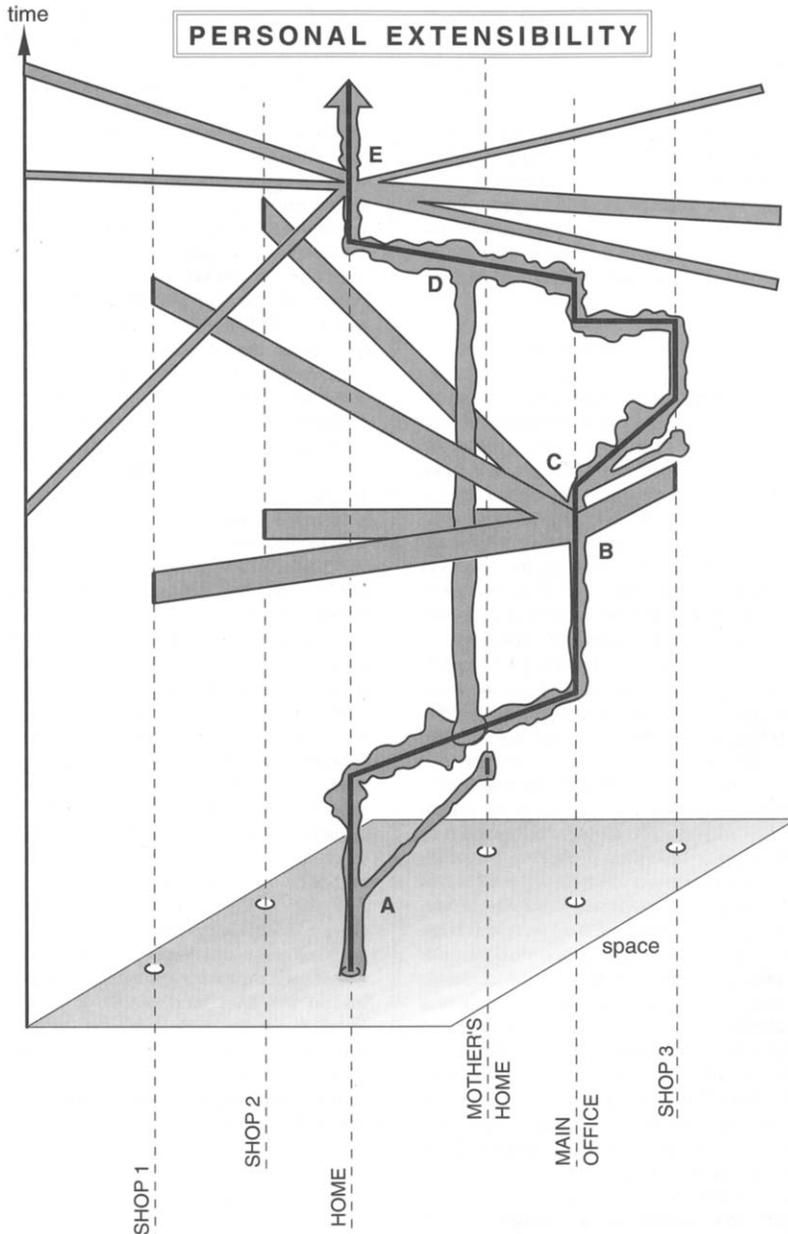
Fig. 1. Time-space extensibility diagram. A simplified representation of a day in the life of a chain-store manager. The bold line indicates the location of her body. The shaded area represents her extension in space-time. From "A reconsideration of personal boundaries in space-time," by P. C. Adams, 1995, *Annals of the Association of American Geographers, 85*, p. 273. Reprinted with permission.

This avenue of investigation leads into spatial approaches used frequently by psychologists, sociologists, and architectural designers. One such approach is sometimes referred to as

"room geography" (Jakle, Brunn, & Roseman, 1976). Room geography uses mapping to study how individuals distribute themselves across a given space and has led to many findings about human spatial behavior and personal boundaries that are now quite familiar to many of us (Aiello, 1987). For instance, when arriving at a library to study, individuals first try to find a place to sit at an empty table. If all tables have one occupant, individuals will then start to sit two to a table, sitting as far away as possible from the other occupant. In this way, individuals attempt to maintain a certain amount of personal space and privacy. Similar observations can be made regarding people sitting on public benches, or on public transportation, such as buses and trains.

Extensive institutional spaces (e.g., malls, plazas, walking arcades, and marketplaces) do not exactly have "rooms" but similar types of studies also can be carried out to examine the
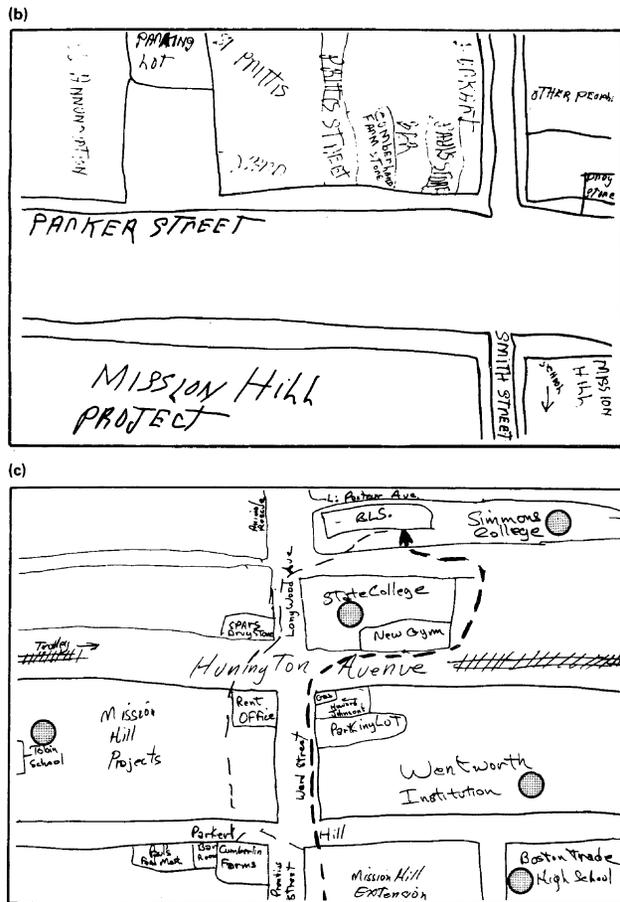

Fig. 2. Mental maps of a Boston neighborhood by two young residents: Ernest (*top*) and Ralph (*bottom*). From *Mental Maps* (2nd ed., p. 16), by P. Gould and A. White, 1986, Boston: Allen & Unwin. Reprinted with permission.

distribution and social activities of people within those kinds of public or quasi-public spaces. Brown, Sijpkes, and Maclean (1986) and Hopkins (1992) referred to the use of seating sweeps and bench studies to examine the activities of the users of indoor shopping malls. Brown, Sijpkes, and Maclean (1986) described seating sweeps as a nonobtrusive observation "during which the personal characteristics and behavior of sedentary individuals in a complex were recorded at a particular point in time" (p. 166). Bench studies, on the other hand, record the sequence of behaviors at particular benches within the shopping center over an extended period of time. The authors noted that "the sweeps and bench studies were essentially maps of the seating areas. Thus it was possible to record the relative position of each individual with respect to other people and [the] built form" (p. 166). Similarly, Bechtel, Marans, and Michelson (1987) referred to behavior mapping, in which the researcher takes "a drawn-to-scale map of an environment and then notes behavior as it occurs in its true location on the map. Usually the notation is made in some code with a specific time frame adhered to" (p. 21).

The types of spatial methodologies outlined previously can be used to investigate a wide range of interesting questions about people within the context of various social activity spaces. Investigations could encompass the following topics: (1) what people actually do, or prefer to do, in certain physical spaces; (2) how people perceive the public and private spaces that they use and visit; (3) how and why places become meaningful to various groups of people; (4) how people navigate within complex environments; and (5) how the preferences and behaviors of people can be used to design public spaces that work better to meet the needs of the people using them.[3] Although there have been hundreds of studies of library users and their information-related behaviors, relatively little of this research has focused on libraries as a type of social activity space, even though many of the questions and methods described previously could apply directly to libraries. This article therefore outlines how one of these approaches (seating sweeps) has been used in a study of large central libraries, and suggests ways in which such an approach could be used to reveal new insights about the public's use and perceptions of these library spaces, which are an important and prominent type of public space and collective resource.

4. Research context: Studying central libraries

The seating sweeps method that is described in this article is one method used in a large funded study of two of Canada's largest central libraries. As noted previously, the overall purpose of the study is to explore the role of large central libraries as a type of public space within a postmodern urban context. In particular, the study explored specific questions such as the following:

- How does the central library function as public space?
- How is it different from, or similar to, other types of public space?

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[3] For a recent example of a study including a spatial approach, see Nagasawa (2000).

- Who are the users of the central library, and what do they use the central library for?
- What are users' perceptions of the important and appropriate roles for the central library?
- How have information technologies (e.g., computerized catalogs, databases, and the Internet) affected the uses and perceptions of the central library?

Because the focus of the research is on central libraries in major urban centers, the research does not examine branch libraries scattered throughout metropolitan areas, although they are also worthy of study.

The two sites chosen for the study were the Toronto Reference Library (TRL; formerly the Metro Toronto Reference Library), built in 1977, and the Vancouver Public Library Central Branch (VPL), built in 1996. These two central libraries were chosen because they are among the largest public libraries in Canada, are located in the downtown cores of large urban centers, and represent a significant capital investment on the part of their respective city councils. In addition, both were controversial libraries when they were constructed, and each was designed to make a bold statement about the important role of libraries and access to information within their respective city. Finally, although the two libraries are similar in many respects, they differ on two important dimensions. First, they were constructed in different eras: the Toronto library was built just prior to the advent of widespread electronic resources and the Vancouver facility was constructed in the era of the information highway. Second, TRL has a noncirculating reference collection, whereas VPL has a fully circulating collection. The researchers thought that these differences might bring out some significant comparisons on the role of central libraries.

To investigate the research questions noted previously, the research team (two researchers and two research assistants) used a triangulated methodology, including an extensive written patron survey, face-to-face interviews with a smaller sample of patrons, in-depth interviews with library staff, and an unobtrusive patron-observation survey, called "seating sweeps." The written survey consisted of 30 closed- and open-ended questions developed in consultation with librarians at the TRL and VPL. These questions were based, in part, on the American Library Association's study of the roles performed by public libraries (McClure, Owen, Zweizig, Lynch, & Van House, 1987) and a previous user survey undertaken by the TRL in 1990. The seating sweeps consisted of three-times-daily observational walks or sweeps through the library, making systematic and detailed observations of 60 different variables concerning individuals who are present in specific locations and what activities they are conducting at specific times of the day. The sweeps method is described in greater detail in the sections that follow.

Data collection in Toronto and Vancouver took place from July 5 to July 15, and from September 27 to October 6, 1999, respectively. The written survey data were collected during the first day and a half of the study at each library. Two members of the research team stood at the turnstile entrance to the library and handed out questionnaires to patrons as they entered the library. The patrons were asked to fill out the survey if they had time, and to deposit completed surveys in a deposit box at the library exit. Pencils were provided to those who needed them. At the TRL, 1,880 surveys were handed out, and 864 usable surveys were

SITE LOCATION CODES								
PROFILE								
Male								
Female								
Age estimate: under 30								
Age estimate: 30-60								
Age estimate: over 60								
POSSESSIONS								
Books, reading, writing material								
Briefcase, Portfolio								
Knapsack, Carry-all bag								
Laptop computer								
Walkman								
Food, drink								
Walking Aid (cane, walker, etc)								
Baby/young child								
Baby carriage								
Other Possession (list on back of sheet)								
ACTIVITIES								
Reading								
Writing								
Physically searching, retrieving								
Using laptop								
Using library computer								
Using other library technology (copier, etc.)								
Using telephone								
Talking								
Listening (walkman, audiotapes)								
Eating								
Drinking								
Sleeping								
Just watching/sitting								
Purchasing								
Interacting with staff								
Touching another person								
Other (list on back of sheet)								

SITE LOCATION CODES	Shelving		Mass Count Categories (# of people)		
Workstations	S = Stacks		AW = Audio Wkstn (4+ wkstns)		
CW = Computer Wkstn	RS = Reference Shelves		MR = Mircofiche/film Reader/printer (4+ wkstns)		
CD = CD Rom Wkstn	PU = Pick Up Shelves		ID = Info Desk		
PW = Printing Wkstn	FC = Filing Cabinets		S = Stacks (browsing)		
AW = Audio Wkstn	CC = Card Catalogue				
VW = Video Wkstn			*Furniture*		
DCW = Disabled Computer Wkstn	*Tables*		DI = Displays (Bletn Brds, Not, Art, Maps)		
	WT =Work Table		SC = Sofa Chair		
Equipment	WC = Work Carrel		LO = Locker	*Area*	
P = Photocopier	DWT = Disabled Work Table		SD = Security Desk	FC = Food Court	
MR = Microfiche/film Reader/printer			BT = Book Truck	IS = Indoor Street	
DSE = Disabled Special Equipment Carrel				OS = Outdoor street	
T = Telephone				OA = Open Area	

returned, for a response rate of 46%. At the VPL, 1,850 surveys were distributed, and 1,077 usable surveys were returned, for a 58% response rate. The seating sweeps were conducted for a 6-day period, Monday through Saturday, to obtain an entire week's profile.

For data analysis, coding schemes were developed for the surveys and the sweeps, and the responses and observations were entered into data matrixes, created with an SPSS software package, version 8, for analysis. Because the seating sweeps generated such a large amount of data, it was later decided to use only a 3-day sample from each site. Accordingly, 2,779 observations were analyzed from the TRL, and 4,368 from the VPL.

5. The seating sweeps method

The method that the research team used at both the Toronto and Vancouver sites consisted of observational walks (or sweeps) through the public areas of the libraries and their immediate external seating areas. At the TRL, sweeps were conducted on all five floors of the library building, including circulation and reference areas, book stacks, computer terminals, the newspaper reading room, an indoor café, benches outside of the entranceway, and all other public areas. Many of these public areas were also common to the VPL; however, the sweeps at this site were conducted over seven floors, including a public meeting room and an indoor atrium of shops, restaurants, and public seating areas.

The seating sweeps were designed to capture particular types of data, including the following: who was using the library (i.e., gender and approximate age), the activities in which those individuals were engaged (e.g., reading, writing, talking, eating, sleeping, and using library computers), the library location in which those activities occurred (e.g., book stacks, computer terminal, printer, and public telephones), and the personal belongings that those individuals had with them (e.g., briefcases, cell phones, laptop computers, food and drink, and baby carriages). These data were gathered on a "seating sweeps checklist" created by the research team in advance of formal data collection at each site (Figure 3).

Although many of the location categories were common to both sites (e.g., circulation desk), others were site specific (e.g., TRL's basement newspaper reading room). The checklist used at the VPL required some modification from that used in the TRL to reflect the unique design of each building. Although the vast majority of patron activities and possessions were common to both sites, some new categories were added for the second round of data collection at the VPL (e.g., patrons there used handheld translators that were not seen at the TRL). To develop the core categories for the checklist, initial sweeps were completed on all floors at both sites. The research team mapped and photographed the visual space on all floors (i.e., to document the location of furniture and equipment) and created codes for locations, possessions, and activities.

Fig. 3. The seating sweeps checklist, designed to capture observational data on 60 different variables concerning individuals and their activities in the public library space.

Once the initial checklist was completed, each member of the research team was assigned one to two floors for data collection. The first step for each member was to run an initial sweep through his or her assigned space to pretest the checklist (i.e., adding new codes where necessary) and to determine the length of time needed to sweep through the space. The length of time varied across location within the library depending on the number of seating areas, computer workstations, and so forth on each floor, as well as the time of day and/or day of week. The data collection period at each site lasted one full week (in early July at the TRL and late September at the VPL). Sweeps were conducted three times per day at different intervals (from 10:15 am to 11:30 am, 2:00 pm to 3:30 pm, and 6:00 pm to 7:30 pm) to obtain a glimpse of the ongoing activities in both libraries across the range of normal business hours (the only exceptions were Friday and Saturday evenings when both libraries were closed). Each member of the team was responsible for sweeping his or her one to two floors of the library every day, at the designated times. A new checklist was used for each time period and the researchers' names were documented on each form. In all, the research team conducted systematic and detailed observations of the 60 variables, resulting in observations for more than 10,000 individuals per library, per week.

In addition to the initial pretest of the checklist, the checklist was continually monitored and revised throughout the first few sessions of formal data collection. An "other" category was included on the checklist to document previously unobserved locations, possessions, and activities, and the research team was debriefed at the end of each day to share insights on these new codes. In some cases, the recategorization of existing codes was required. For example, the research team noted very early on at the first library site (TRL) that the activity code "searching" was much too broad. The team decided that it was appropriate to revise this code to differentiate "physical" searching (e.g., locating a book on a shelf) from searching for information on the library's computer. In this case, another code ("using the OPAC") was broadened (to "using the library computer") to document searching for various types of digital information. This change was appropriate because many (if not most) of the libraries' computers were multiuse terminals, including many applications in addition to the library's online catalogs.

The pretest and initial data collection sessions also reinforced for the researchers that the seating sweeps method is, by nature, an observational method, with inherent ethical and privacy obligations. Because it is a public space, the library is an ideal location for observing human behavior; however, many steps are required to assure library patrons (and institutional ethics review boards) that individual privacy is upheld. The method used in this study, for example, did not identify specific individuals, and at no time were the other survey methods used connected to the results of the sweeps. In addition, signs were posted at the entrance of each library clearly explaining that a study was ongoing for the duration of the data collection period.

Despite these structured steps, the use of the observational method did raise one particular issue that the researchers had not anticipated in advance, which is best described as a question of "who was watching whom?" Although prolonged engagement is a necessary component of the method (i.e., to ensure that observations are made across all days of the week and different times each day to capture a wide range of patron behaviors), regular library users

came to recognize the researchers and their timed patterns of walking through the different floors. For example, one member of the research team noted that the same group of men worked at the same table, at the same time, each day. By the end of the week, the men would nudge one another and turn to watch the researcher making notes, clearly wondering what she was doing. Although none of the men approached the researcher to ask what she was doing, she adjusted her behavior (as did the other members of the team) to minimize these types of "counterobservations." Strategies for minimizing such researcher effect included the following: completing the checklist while standing behind book stacks, file cabinets, and so forth; appearing to look elsewhere in the room, while stealing glances at the individual being observed; completing the checklist while seated at an empty study table (i.e., giving the appearance of doing work akin to that being done by other patrons); and using other approaches that felt most comfortable to each member of the research team. The goal in using these approaches was not to deceive patrons, or to manipulate their behaviors in any way, but to have the observers blend in with the library surroundings and unobtrusively document events happening in the space.

6. Findings

The sweeps observational method resulted in several interesting findings, the vast majority of which could not be documented in any other way. Although the full findings of the study are reported elsewhere,[4] an exploration of some of the sweeps findings are valuable to discuss here to highlight the usefulness of this approach in documenting patron behavior. Because of the large amount of data collected at the two sites, the following findings are based on a sample of days (Monday, Wednesday, and Saturday) at both sites, providing a glimpse of the behaviors of more than 7,000 individuals. Monday was selected, because it is the busiest day of the week in both libraries; Wednesday reflects a more typical weekday; and Saturday is representative of a typical weekend day.

Prior to an examination of these findings, it was useful to contextualize the observed behaviors in light of some of the demographic trends reported on the written questionnaires that were completed in the full study. These trends included the following characteristics about the libraries' patrons: they were almost exclusively residents of their respective cities (residing less than 1 hour away from the library); they were generally well educated (approximately 60% of patrons held a university degree, college diploma, or higher); 30% of patrons described themselves as working in professional careers; 25% were students; and a small minority were homemakers, self-employed, or tourists. Finally, the patrons were a diverse group, as might be expected. Most patrons spoke English and 20% spoke French. In addition, many other languages were represented (65 different languages were documented in the TRL and 50 in the VPL), with the top 4 at both sites being Chinese (including Cantonese and Mandarin), Spanish, Korean, and Japanese.

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[4] See Leckie and Hopkins (2002).

6.1. Seating sweeps: general trends

The seating sweeps revealed an interesting visual picture of the libraries' patrons in terms of sex and age. Although much of the existing literature on public library use points to women as being the heaviest users of the public library (Berelson, 1949; Lange, 1987–1988; Payne, 1998), this study revealed that this only held true in the children's section of the VPL. On average, male patrons comprised most of all library patrons (61% at the TRL and 56% at the VPL). The sweeps also revealed that most library patrons were younger than 60 years (92% at the TRL, 94% at the VPL), a notable finding given the current rhetoric around lifelong learning, and the research team's own expectation that retired persons would be heavy library users. This age cutoff is an approximation, however, because patrons' ages were only estimated by the research team during the observations. Although the team initially hoped to capture age data in 10-year age ranges, it was unworkable during the initial test phases of the study to make precise observations within such narrow categories. In the end, patrons' ages were listed using three categories: younger than 30 years, 30 to 60 years, and older than 60 years. Although this approach worked well for the very young and the very old, patrons on the cusp of these age groupings may have been misclassified.

Another trend was that the busiest time of day in the libraries was midafternoon, across age and sex demographics. Although many patrons who work during the day require evening and/or weekend hours to access the library, Saturday was actually one of the slower days of the week. The questionnaires and patron interviews conducted alongside the sweeps provided some insight into this trend, revealing that students and business people frequented the library during the day as part of their paid or personal work.

6.2. Location of patrons in library space

The observational method also provided insight into where patrons were situated within the library. Using the sex of patrons as a breakdown (see Table 1), most patrons (45%–67%) were found sitting at study carrels or at work tables. Computer workstations (providing library catalog, database, and Internet access) were a distant second (12%–15% of patrons), and the third most popular location (6%–12%) was the food court or indoor street area in both libraries. Table 1 shows these findings also held true across the age and temporal categories.

Other observed locations included the following: information desks (where women and girls were more likely to be seen than men and boys), microfiche or microfilm readers (more heavily used by older patrons), photocopiers, and reference shelves (which became more heavily used as the day wore on). Each library also had several comfortable sofas and benches, which were most heavily frequented by male patrons. These findings have implications for library design and planning decisions, particularly given the emphasis libraries currently place on increasing the number of computer access points. Observed patron locations suggest that, when designing libraries, one needs to be careful not to sacrifice traditional study space, because this remains the highest area of usage within these large libraries.

Table 1
Patrons' Locations

By Sex	Toronto Reference Library		Vancouver Public Library	
	Male	Female	Male	Female
Work Table/Carrel	60%	57%	55%	53%
Computer Workstation	14%	12%	14%	15%
Food Court/Street Area	6%	6%	8%	10%
Other Location	20%	25%	23%	22%

By Age	Toronto Reference Library			Vancouver Public Library		
	<30	30–60	>60	<30	30–60	>60
Work Table/Carrel	55%	61%	67%	60%	45%	49%
Computer Workstation	15%	11%	8%	15%	15%	10%
Food Court/Street Area	9%	5%	0%	7%	11%	7%
Other Location	21%	23%	25%	18%	29%	34%

By Time Period	Toronto Reference Library			Vancouver Public Library		
	Morning	Afternoon	Evening	Morning	Afternoon	Evening
Work Table/Carrel	56%	59%	60%	46%	57%	57%
Computer Workstation	15%	11%	15%	19%	13%	14%
Food Court/Street Area	5%	8%	4%	10%	8%	8%
Other Location	24%	22%	21%	25%	22%	21%

In addition, observations showing the popularity of the food courts and other external, but connected, rest areas should prompt other libraries to consider providing more spaces like these for library patrons. Across all of the data collection methods used in this study, the research team found a noticeable number of patrons who stayed at the library for many hours and made extensive use of rest areas for meal breaks, to phone home, to discuss research projects, and to perform other tasks, and then returned to the library proper to continue their work. For these two libraries, patrons found inviting environments where they could rest, eat, and chat with others before continuing their work within the library space.

6.3. Patrons' possessions

Library patrons had several items in their possession while working in the library. Across the sex-of-patron category (see Table 2), books were the single most frequent possession observed for both men and boys, and women and girls (held by more than 70% of patrons at both sites). Carrying cases, such as briefcases, knapsacks, and grocery bags (held by 59%–81% of all patrons), were the second most common possessions observed. Despite posted policies prohibiting their use in the library, food and drink ran a distant (but remarkable) third place (held by 5%–11% of male and female patrons). Many patrons were observed removing food and drink from inside carrying cases, pockets, and so forth, so the actual number of patrons with food items may be much higher, although unobserved.

Table 2
Patrons' Possessions[*]

By Sex	Toronto Reference Library		Vancouver Public Library	
	Male	Female	Male	Female
Books	72%	71%	77%	76%
Carrying Case	63%	81%	59%	76%
Food/Drink	5%	10%	8%	11%
Other Possession	7%	5%	11%	9%

By Age	Toronto Reference Library			Vancouver Public Library		
	<30	30–60	>60	<30	30–60	>60
Books	67%	76%	79%	79%	71%	79%
Carrying Case	81%	65%	47%	78%	48%	31%
Food/Drink	8%	7%	3%	9%	11%	5%
Other Possession	6%	6%	11%	11%	8%	7%

By Time Period	Toronto Reference Library			Vancouver Public Library		
	Morning	Afternoon	Evening	Morning	Afternoon	Evening
Books	67%	73%	74%	71%	79%	78%
Carrying Case	68%	70%	75%	57%	67%	75%
Food/Drink	7%	7%	6%	10%	9%	9%
Other Possession	4%	7%	3%	11%	10%	10%

  * Columns do not equal 100% as some patrons had more than one possession.

In addition, library patrons had with them a range of other possessions, including boxes of tissue, magnifying glasses, cameras, walking aids (e.g., canes), baby bottles, skateboards, and even bicycles. One of the most interesting "other" items at the VPL was "electronic translators," observed particularly among Asian patrons. These units enabled patrons to translate texts into different languages, while using those texts within the library space. From a methodological point of view, discerning the nature of these electronic units was a particular challenge for the research team. Members of the team had to carefully and quietly observe, sometimes over patrons' shoulders, to determine the use of these electronic gadgets and to distinguish them from personal digital assistants (e.g., Palm), other forms of electronic day timers, and electronic books. Library administrators may want to consider purchasing translators, such as those seen in this study, as equipment that patrons might appreciate being able to borrow for lengthy periods of time or for use in the library, particularly for those patrons who otherwise could not afford such a sophisticated and expensive (ranging in the hundreds of dollars) piece of equipment.

6.4. Patrons' activities

The most common activity (reading) may not be a shock given that "books" represented the most common item possessed by library patrons (see Table 3); however, the frequency of

reading may be somewhat surprising given the weight that libraries currently place on new technologies, and what librarians and researchers *think* they know about library patrons' behaviors. Although most patrons were seated in the library and engaged in studious behavior (i.e., 51%–64% of men and boys, and women and girls were reading), research on this activity has not received much attention in recent years, and general collections budgets are increasingly coming under fire. It was notable that reading was the most prominent activity across all age groups and at all times of the day. These findings point to the need to highlight the importance of books and reading within library spaces, and may prove to be an important counterargument to the uninformed view that physical libraries will no longer be needed with increasing use of electronic resources.

In addition, although writing was the second most commonly observed behavior (engaged in by 18%–24% of male and female patrons), "talking to other patrons" was a close third (12%–20% of patrons). Talking is something that typically has been discouraged in library settings (as represented in the prevalent image of the "shushing librarian"), or, as Kelman (2001) has noted about the central reading room of the New York Public Library, "behavior

Table 3
Patrons' Activities[*]

By Sex	Toronto Reference Library		Vancouver Public Library	
	Male	Female	Male	Female
Reading	54%	51%	64%	58%
Writing	19%	22%	18%	24%
Talking	12%	18%	14%	20%
Using Computer	15%	13%	13%	14%
Other Activities	30%	31%	19%	21%

By Age	Toronto Reference Library			Vancouver Public Library		
	<30	30–60	>60	<30	30–60	>60
Reading	45%	58%	63%	64%	54%	65%
Writing	19%	22%	14%	26%	11%	6%
Talking	23%	6%	6%	18%	15%	9%
Using Computer	17%	12%	10%	14%	13%	9%
Other Activities	29%	30%	24%	17%	26%	20%

By Time Period	Toronto Reference Library			Vancouver Public Library		
	Morning	Afternoon	Evening	Morning	Afternoon	Evening
Reading	47%	54%	54%	53%	63%	65%
Writing	18%	21%	21%	21%	21%	24%
Talking	13%	14%	15%	18%	16%	17%
Using Computer	19%	11%	16%	18%	12%	13%
Other Activities	33%	31%	22%	23%	19%	18%

  [*] These categories represent the top four activities engaged in at both libraries; other activities included singing, dancing, etc. Please note that some individuals were engaged in more than one activity (e.g., reading and talking).

is quietly regulated and carefully choreographed'' to encourage the production of silent reading. Despite this, in the two libraries studied, talking as a behavior was often part of the patrons' generally studious activities in that the research team frequently observed a small group of patrons reading aloud from books, sharing written notes, and other ''talking'' activities that were clearly conducive to research work. Given the popularity of talking among the users observed in this study, the need for areas conducive to talk need to be factored into library-design decision making. The VPL, for example, had several study rooms that patrons could book to work on school projects, business plans, or any work where discussion was vital to the project at hand. Library administrators may want to facilitate more of this within library spaces, particularly to ameliorate the perception that patrons must leave the library space to talk. It is important to recognize the important social function of library space, and libraries may need to do more to encourage the view of ''library as interactive place'' versus ''library as quiet space.''

The downside to the provision of discussion facilities is that they can be misused or monopolized, thus requiring additional staff time to mediate complaints. For instance, at VPL, it was observed that some groups using study rooms were a bit noisy, and other patrons had complained to librarians about this. The VPL also experienced difficulties with these spaces in that paid, professional tutors would often monopolize the study rooms to teach their clients, often for hours at a time, thus preventing other library patrons from using the rooms. In such cases, it may be necessary to develop clear library policies on booking and appropriate use of shared discussion facilities. These problems do not negate the usefulness and popularity of discussion facilities, however.

As an activity, ''using the computer'' (13%–15% of patrons) was slightly less observed than ''talking.'' This finding is surprising given the constant emphasis on the role of new information technologies in contemporary libraries. The unexpected ambivalence of some patrons toward the use of computers in the libraries was also confirmed through survey responses, in which just over one third of TRL patrons, and about one half of VPL patrons, purposefully came to the library to use electronic resources—either the Internet, e-mail, the library's catalog, or CD-ROM databases. In terms of reported use per visit of electronic resources, patron use was split at both libraries, with about one third of patrons stating that they usually or always used them, and about one third stating that they rarely or never used them. This split was also evident when patrons rated the importance of electronic resources. Less than one third of patrons reported that these resources were unimportant or only somewhat important, and well over one third reported that they were very important or vital at the TRL and nearly half of patrons reported the same at the VPL. Women and girls were just as likely as men and boys to use electronic resources, whereas older patrons (>65 years) were more likely to say that they never used them. These latter survey findings also were borne out by the sweeps, revealing that men and women were observed at the workstations in roughly equal numbers and that older persons tended to be observed at workstations less frequently than younger patrons. Clearly, computerized information technologies in the central library are not an equally important feature for all patrons.

Other activities in which patrons were engaged and observed included the following: talking to library staff (most commonly observed with female patrons); physically searching

for materials in the book stacks, on shelves, or in filing cabinets; eating; sleeping; drinking; and touching (from mothers holding babies, to couples kissing and embracing). Many of these latter activities are not what libraries have encouraged or even considered as typical patron behaviors, but they clearly demonstrate the social nature of the library space, and the level of comfort that individuals seem to feel within the library.

7. Conclusion

The seating sweeps method points to the inherent value of observational studies: the opportunity to see what people really do within the library space. Observed behaviors may not match what individuals say that they do on a written or oral survey and therefore may be able to provide concrete evidence to support a particular library design or certain types of policy decisions (e.g., are the computers really "always busy" as some patrons claim, or are they only very busy at certain times of the day). In addition, this method is preferable where patrons may be less than forthcoming using another method (e.g., questionnaire) regarding behaviors that would traditionally be frowned upon by librarians. For example, although patrons may not admit to eating or drinking in the library or defacing library materials if asked about these behaviors on a questionnaire, with careful observation, library researchers may be able to see these activities occurring in the library space. At the same time, it is vital to be mindful of the fact that, although observation studies can provide an insightful glimpse of "what" is happening in libraries, they do not indicate "why" patrons do what they do; researchers must assess important "why" questions through a triangulation of other methods (e.g., questionnaires or personal interviews) to investigate the full range of patrons' attitudes and motivations.

In addition to the way that the seating sweeps method was used in this study, there are many ways that researchers may extend this approach to obtain a much more dynamic and rich picture of individuals' behaviors. Observational shadowing of particular library patrons, for example, gives a much more detailed view of patrons' library use, but this approach comes with two issues that researchers must resolve. First, the shadowing approach is quite time consuming (resulting in a much smaller sample of individuals than was reported in this study). Second, this approach is highly intrusive, so the data collection would necessitate a higher level of care toward individuals' privacy within the library space. Another possible extension of the seating sweeps method is that of time-space mapping, or the ability to follow individuals through the library space and map their activities over the course of a day (or a week). This approach would provide libraries with a much better sense of which areas of the library are more heavily used (by whom and when), which pieces of furniture obstruct people's movements throughout the space, where best to place information technologies, why certain areas are favored for study or reading, or which areas of the library to designate as "quiet" zones for private study. Again, although potentially fruitful, the method would be labor intensive and possible only with a small sample.

In all, the seating sweeps method is able to illuminate the daily life of one of the last truly public spaces where unlimited access is guaranteed—the public library. As well as

providing valuable descriptions of who library patrons are and what they are doing, the seating sweeps method points out the diversity of patron behaviors and activities in library spaces, ones that may conflict with the rules and regulations libraries have traditionally set. In this study, the sweeps method, combined with complementary written surveys and oral interviews, demonstrates that even large, complex central libraries are vibrant social spaces, where people engage in a wide range of activities, from lively dialog while munching sandwiches and sipping soda, to flirting and caressing, to the more traditional activities of reading and information searching. As librarians concern themselves with attracting new patrons to the library, they must remember to consider users' real, necessary activities, creating policies and areas within libraries that fit their needs and expectations of libraries as places that are socially constructed by the myriad of activities and interactions taking place within them.

Acknowledgments

References

Adams, P. C. (1995). A reconsideration of personal boundaries in space-time. *Annals of the Association of American Geographers*, *85*, 267–285.

Aiello, J. R. (1987). Human spatial behavior. In I. Altman, & D. Stokols (Eds.), *Handbook of environmental psychology 1* (pp. 389–504). New York: Wiley.

Bechtel, R. B., Marans, R. W., & Michelson, W. (1987). Observation: The world under a glass. In R. B. Bechtel, R. W. Marans, & W. Michelson (Eds.), *Methods in environmental and behavioral research* (pp. 11–40). New York: Van Nostrand.

Berelson, B. (1949). *The library's public: A report of the public library inquiry*. New York: Columbia University Press.

Brown, D., Sijpkes, P., & Maclean, M. (1986). The community role of public indoor space. *Journal of Architectural and Planning Research*, *3*, 161–172.

Cassidy, T. (1997). *Environmental psychology: Behaviour and experience in context*. Hove, UK: Psychology Press.

Craik, K. (2000). The lived-day of an individual: A person-environment perspective. In W. B. Walsh, K. H. Criak, & R. H. Price (Eds.), *Person-environment psychology: New directions and perspectives* (2nd ed.) pp. 233–266). Mahway, NJ: Lawrence Erlbaum Associates.

Cromley, E. K. (1999). Mapping spatial data. In J. J. Schensul, M. D. LeCompte, R. T. Trotter II, E. K. Cromley, M. Singer (Ed.), *Mapping social networks, spatial data, and hidden populations* (pp. 51–123). Walnut Creek, CA: Altamira Press.

Ghosh, A., & Rushton, G. (1987). *Spatial analysis and location-allocation models*. New York: Van Nostrand.

Golledge, R., & Stimson, R. J. (1987). *Analytical behavioural geography*. London, UK: Croom Helm.

Gould, P., & White, R. (1986). *Mental maps* (2nd ed.). Boston, MA: Allen & Unwin.

Hagerstrand, T. (1970). What about people in regional science? *Papers and Proceedings of the Regional Science Association*, *24*, 7–21.

Hopkins, J. (1992). *Landscapes of myths and elsewhereness: West Edmonton Mall*. Unpublished doctoral dissertation, McGill University, Montreal, Canada.

Jakle, J. A., Brunn, S., & Roseman, C. C. (1976). *Human spatial behavior: A social geography*. North Scituate, MA: Duxbury Press.

Kelman, A. (2001). The sound of the civic: Reading noise at the New York Public Library. *American Studies*, *42*, 23–41.

Kitchin, R., & Freundschuh, S. (2000). Cognitive mapping. In R. Kitchin, & S. Freundschuh (Eds.), *Cognitive mapping: Past, present and future* (pp. 1–8). London, UK: Routledge.

Lang, J. (1987). *Creating architectural theory: The role of the behavioral sciences in environmental design*. New York: Van Nostrand.

Lange, J. (1987–1988). Public library users, non-users, and types of library use. *Public Libraries*, *8*, 49–67.

Lees, L. (2001). Towards a critical geography of architecture: The case of an ersatz colosseum. *Ecumene*, *8*, 51–88.

Leckie, G. J., & Hopkins, J. (2002). The public place of central libraries: Findings from Toronto and Vancouver. *Library Quarterly*, *72*, 326–372.

McClure, C. R., Owen, A., Zweizig, D. L., Lynch, M. J., & Van House, N. A. (1987). *Planning and role setting for public libraries: A manual of options and procedures*. Chicago, IL: American Library Association.

Nagasawa, Y. (2000). The geography of hospitals: A developing approach to the architectural planning of hospitals. In S. Wapner, J. Demick, T. Yamamoto, & H. Minami (Eds.), *Theoretical perspectives in environment-behavior research: Underlying assumptions, research problems and methodologies* (pp. 217–227). New York: Kluwer Academic.

Payne, L. A. (1998). Public library support for groups and users. In W. L. Whitesides (Ed.), *Reinvention of the public library for the 21st century* (pp. 83–94). Englewood, CO: Libraries Unlimited.

Statistical Package for the Social Sciences Ver. 8 (SPSS 8.0). SPSS, Chicago.

Sule, D. (2001). *Logistics of facility location and allocation*. New York: Marcel Dekker.

Walmsley, D. J., & Lewis, G. J. (1993). *People and environments: Behavioural approaches in human geography* (2nd ed.). Essex, UK: Longman Scientific.

Zukin, S. (1995). *The cultures of cities*. Cambridge, MA: Blackwell.