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## Understanding Information-Seeking: The Public Library Context

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### I. Introduction

The history of the public library is long and rich, and continues to reflect this institution's initial mission: to respond to the needs of an evolving democratic society. From its early days as a subscription service for the middle-class, through its evolution to become an educational site for the lower-classes and new immigrants, the public library has served as a touch-stone for urban industrial society in North America (Lerner, 1998, p. 138; Shera, 1974). Over the past century, public libraries have evolved to respond to the growing needs of the communities they serve and continue to do so with recent advances in technologies (such as DVDs, electronic books, the Internet, etc.), and with a more global outlook on the ways that people seek and share information. Indeed, the public library's constituents today are exceedingly diverse, including children and adults from a broad range of socio-economic, cultural, and educational backgrounds, all of whom seek information for a variety of personal and work-related purposes. The fact that public libraries have been fulfilling patrons' information needs for well over a century is a testament to their enduring success and versatility as information providers, and also points to the overall effectiveness of public librarians as intermediaries in the provision process.

What do we know about how the public uses the public library to satisfy its information-related needs? The answer to that question is that we actually know less than we should because until recently, the research literature on information-seeking concentrated on the information-seeking behaviors

and practices of academics, scholarly researchers and various professional groups, such as doctors, nurses, engineers and the like (Case, 2002; Julien, 1996; Leckie *et al.*, 1996). In-depth studies of the information-seeking of members of the general public in relation to the public library are far fewer in number. Although this is now changing and more research is being directed towards the study of the general public, there are still large gaps in the research literature and there are very few published papers that have tried to pull together what is known about information-seeking in relation to the public library.

The aim of this overview is to tease out what we understand about information-seeking in the context of the public library by considering what is known about information-seekers (i.e., the public) and the primary information providers (i.e., librarians) who assist them. Since the two groups are intimately connected in their common concern with library materials for the public's enrichment, research and pleasure, it is impossible to comment on the information-seeking activities of the public without touching on the professional work of those who serve them. We begin with an overview of what is meant by the term "information-seeking" and a summary of the research literature about it. We then review five distinct areas of the literature related to the public's information-seeking, including: (1) the use of the public library and its collections, (2) reference services and reference transactions, (3) the information needs and seeking behaviors of specific populations, (4) information technologies, training and searching, and (5) information-seeking and the physical environment. A wide variety of published materials will be included because much of what we know, or think we know, about the information-seeking of the public and their use of public libraries has to be deduced from works that did not have information-seeking as their primary focus.

#### A. Defining Information-Seeking

Information-seeking is a phrase that has been much used and abused and there are literally hundreds of studies that attempt to examine various aspects of information-seeking as a general phenomenon. However, the all-encompassing nature of the phrase is undermined by the fact that "seeking" may be only one type of activity related to information in which people engage. At the macro level, some scholars have begun to substitute more all-inclusive terms, such as "information behavior" or "information practices" to describe a broad range of activities that relate to the location and use of information (Foster, 2004; Hjørland, 2000; Niedzwiedzka, 2003; Wilson, 1999, 2000). Studies of this type do

examine people's purposeful quests for information (such as finding an interesting novel to read, or locating consumer information before buying a new car), but they also explore the role that serendipity and/or non-purposeful information acquisition can play in individuals' daily lives (Foster and Ford, 2003; Spink, 2004).

At the same time, a number of other researchers use quite specific terms to describe the micro-level aspects of various information-related activities, such as "information encountering," "information browsing," "information foraging," "environmental scanning," and other related concepts (Chang and Rice, 1993; Choo, 2001; Erdelez, 1999; Sandstrom, 1994). Other studies point to the importance of examining situational contexts in concert with people's informational activities (Johnson 2003; Talja *et al.*, 1999). All of these studies are linked by their central focus on individuals' personal behaviors and/or perceptions as they engage in a multitude of information-related activities.

We are aware that, as Frohmann (2004) notes, all too often research about information-seeking fails to adequately define what is meant by the term; consequently, it has become a phrase of convenience for any and all activities that have some sort of informational component. To avoid this pitfall, we take the perspective that information-seeking is, first and foremost, a process during which a person actively and purposefully seeks something that informs him or her, according to his or her particular need at the time. Informing could take place in a variety of ways (by sight, hearing, touch, smell), but in the context of the public library, informing is most likely to happen through users' interactions with texts (i.e., print, images, sound and other media, in hard copy or in digital form), and with human intermediaries (such as librarians and other patrons). For the purposes of this overview, then, we shall use the phrase "information-seeking" to describe, ultimately, what is the most prevalent information-related activity undertaken by patrons of public libraries: the purposeful search for information, in a range of formats and to serve various purposes as defined by library users themselves. Having said this, we also recognize the very important place of serendipitous or other non-purposeful behaviors in library patrons' information worlds and so discussion of browsing and information encountering also will be included.

#### B. Information-Seeking of the Public: an Evolution of Research and Practice

The history of information-seeking, as a point of focus in both the practice and research of library and information studies (LIS), reaches back as far as the mid-1900s, but has grown most substantially over the

past two decades. Although it is beyond the scope of this review to provide a comprehensive history of this work, especially given the number of excellent published reviews on the topic (Case, 2002; Dervin and Nilan, 1986; Hewins, 1990; Julien, 1996; Julien and Duggan, 2000; Sugar, 1995), it is worth noting a few milestones that have shaped this area of the field.

Many authors point to publications from the early 1900s as marking the early beginnings of the information-seeking literature (Bouazza, 1989; Case, 2002; Wilson, 1994). As Julien (1996) notes in her analysis of the information needs and uses literature from the early 1990s, "user studies tend to focus on the information needs of the privileged (e.g., scholars and professionals) as opposed to the 'average citizen'" (p. 63), a trend dating back through the 1950s. However, Bernard Berelson's (1949) study of public library users (and his call for librarians to recommit themselves to serving users' needs) marks something of a turning point in this area of the field; the majority of studies that are focused on users' information needs and their uses of various information sources date from this point, with a substantial increase in this body of work from the 1980s to the present.

In the decades following Berelson's work, a number of studies emerged that have been classified using the terms "information needs," "information use," or "user studies"—terms that have commonly come to represent explorations of the ways that people seek, locate and make use of information in various contexts (though not usually the public library). Robert Taylor's work (1968), for example, set the stage for numerous investigations of individuals' information-seeking strategies in libraries, by investigating the ways that patrons asked questions at the reference desk. Since that time, other scholars have examined the role of the reference desk and the reference librarian in order to gain an understanding of users' informational activities (Antell, 2004; Dervin and Dewdney, 1986; Dewdney and Michell, 1996; McKenzie, 2003a). Various models and theories also explore individuals' motivations for their information-seeking activities; these include Nicholas Belkin's (1984) ASK (anomalous states of knowledge) model, used to explore the principle of uncertainty in information acquisition, and Brenda Dervin's explorations of "sense-making" as one mechanism for understanding the ways that people seek and use information in order to address a perceived "gap" in their knowledge base. Dervin's "sense-making" theory sets out the idea that an information need "situation" (e.g., where a person is newly diagnosed with cancer) leads to a "gap" in the individual's knowledge base; this "gap" prevents the person from making sense of the situation at hand, and the individual must "bridge" this gap with whatever information is available to

him/her (Dervin and Nilan, 1986, p. 21; see also, Savolainen, 1993 for an extensive overview of Dervin's work).

Other studies have examined information-seeking processes in combination with affective elements that can alter human behavior. Constance Mellon's (1986) work, for example, examined the concept of "library anxiety" and the ways that this altered library users' behaviors. Carol Kuhlthau's (2004) model of the Information Search Process (ISP) is heavily cited in the information-seeking literature, and has extended beyond its original focus on students seeking information for assignments to a number of other informational contexts. The ISP model describes information-seeking activities in terms of six stages, where feelings, thoughts and actions are woven together as person begins and ends his or her search for information. Kuhlthau (2004, pp. 44–50) outlines these six stages, as follows: (1) task initiation, where a person first recognizes the need for information, (2) topic selection, where a general content area is chosen, (3) pre-focus exploration, which is characterized by feelings of confusion, uncertainty and doubt, (4) focus formulation, which is often the turning point in the process, as individuals gain confidence in the search for information, (5) information collection, marked by effective and efficient interaction between the user and the information system, and finally, (6) search closure, where the person feels satisfied or disappointed, depending on the results of the search.

In addition, a number of researchers have explored the habitual patterns and interpersonal connections that can drive (or serve as barriers to) people's decisions regarding how and when to seek information. For instance, Harris and Dewdney (1994) examined the information and referral systems put in place to help battered women. After their review of the literature, the authors proposed six general principles of information-seeking, including:

- information needs arise from the person's situation;
- the decision to seek help/information or not is affected by many factors;
- people tend to seek the information that is most accessible;
- people tend first to seek help/information from interpersonal sources, especially from people like themselves;
- information-seekers expect emotional support; and
- people follow habitual patterns in seeking information.

By the late 1990s, Julien and Duggan (2000) found an increasing interest in the general public as a focus of the information-seeking literature (p. 304). Currently, this trend continues as evidenced by

research reported at the *Information Seeking in Context* conference, published in *The New Review of Information Behaviour Research* (Wilson and Barrulas, 2002) and in other venues. Of particular note in this area is Savolainen's work (1999, 1995) exploring what he termed everyday life information-seeking (ELIS). Following on the many studies that articulated different professions (such as engineers or nurses) and academic groups (including students and professors), Savolainen pioneered an area of research that labelled regular citizens as their own category of information-seekers. Subsequently, there have been a number of other studies that examine ELIS for a range of purposes and life contexts (Given, 2002; Hersberger, 2001; Huotari and Chatman, 2001; McKenzie, 2003b), including a special issue of *Library and Information Science Research* on this topic (Spink and Cole, 2001a). The contexts in which ELIS occur are quite varied, and include health, finance, housing, travel, and a host of other situational topics related to people's daily lives (Marcella and Baxter, 1999a; Spink *et al.*, 1999; Williamson and Manaszewicz, 2002).

It is worth pointing out that while much of the research noted above explores individuals' quests for information in non-library contexts, with little or no reference to the public library, these studies do include findings that are of value to those planning public library services and collections. For example, Catherine Ross' (2000) examination of readers' perspectives on reading for pleasure has direct relevance to librarians selecting materials for public libraries and Carol Kulthau's (2004) work on the information-search processes of students is certainly applicable to helping young adults use the public library. There are a number of studies as well, that mention the public library explicitly and even take this context as a direct focus for ELIS (Budd, 2001; Coles, 1999; Gluck *et al.*, 1996; Pendleton and Chatman, 1998; Vincent, 1988).

What is clear from the literature is that although there is a large body of work related to information-seeking and information-seekers from a variety of theoretical perspectives, there is still a need for more research and professional literature that examines both the information-seeking of the public and the role of the public library in individuals' daily lives (particularly as new technologies raise new information needs). Despite these gaps in the body of research, there are a number of general trends evident in the information-seeking literature that do apply across contexts and user populations, and which can set the stage for this discussion. Some of these general trends include:

- people's information needs are grounded in contexts, changing as different problems, issues, or situations arise in a person's life;

- individuals' information needs change over time, both as new information informs one situation (resulting in a change in what information is then needed) and across the life span (as people move from school to work, or explore their health, financial or other personal issues);
- people often use habitual approaches in locating information—using interpersonal sources, where possible, and returning to resources that have served them well in the past;
- people also use a range of sources of information to solve their information needs—including formal and informal sources, such as other people, textual resources, audiovisual materials, etc.;
- people seek information in both active (e.g., going to the public library) and more serendipitous (e.g., overhearing a conversation on the bus) ways; it is difficult to separate these activities, at times, as the human mind works in fluid ways as it is continually engaged with and learns from the world around it, and
- a one-size-fits-all model for information-seeking is inappropriate in most cases—children and adults have different approaches to locating and using information, as do people across socio-economic, cultural and social contexts.

With these general points in mind, we now turn to a discussion of information-seeking in the context of the public library.

## II. Information-Seeking, The Public and Library Collections

### A. Who is the Public?

Who are the information-seekers who use the public library and its collections and services? Through library-use statistics and surveys, we actually know quite a bit about the answer to that question, although estimates vary depending on the statistical source used. Baker and Wallace (2002) cite a number of surveys showing that between 51–76% of the American population uses the public library, depending on the state of residence. The American Library Association (1998) Gallup poll indicated that about 66% of adult Americans state that they use the public library at least once a year. The current annual statistical report of the Public Library Association (PLA) indicates that, in the largest American population centers, just over half (ranging 51–55%) of the population is registered library users. In the United Kingdom, although some surveys have shown that about 58% of the population is registered library borrowers, other data indicate that the proportion of borrowers

who are active is lower at about 32% of the population (Smith, 1999). Although comparable data are not available for Canada, public libraries, despite having only 30% of the collection resources, accounted for 77% of the reference inquiries and 88% of the circulation reported by all different types of libraries in a national survey (Schrader and Brundin, 2002, pp. 14–15).

As a cautionary note, though, Smith (1999) suggests that surveys may exaggerate actual library usage patterns. He remarks that a minority of frequent library users will be disproportionately high in any sample, a fact that has also been shown to be true in other studies (Clark, 1998). Checking the actual data from the circulation database of one public library, Smith found that although about a "quarter of members borrow or return books at least once a month...most members have not used the library in the previous six months" (p. 304). Taking into account the turnover in library membership, Smith draws the conclusion that there is far more casual use of public libraries than has been commonly acknowledged. On the other hand, Clark (1998) questions why we have not paid more attention to the heavy-borrower group of patrons, since they are the backbone of library service. He remarks that this group should be "the subject of major public relations campaigns and consulted closely on what they need and want" (p. 306).

The clientele of public libraries has been described as middle class. It has been known for decades that there is a strong relationship among education, income levels and library use and most library surveys do show that public library users are better educated and have average family incomes or higher (Smith, 1999). However, surveys also have shown that even those who do not use public libraries hold them in relatively high esteem. Katz (2002) suggests that the reason the public library is so well regarded even by those who do not use it is that most people "consider themselves middle class or bordering on this distinction" (p. 8) and thus hold many of the same aspirations as to the societal value of the public library.

With respect to gender, Vavrek (2000) compared the findings of three surveys of library users and found that, as has been true in the past, the majority of public library users were females, although the proportion varied considerably from study to study. Smith (1999) also found that women and girls tended to be heavier library users than males in the studies that he reviewed. He notes that "Women borrow more books than men do; heavy borrowers are more likely to be women.... Girls of all ages read more than boys, borrow more books from public libraries and borrow more frequently" (p. 306). However, the issue is not as straightforward as it may seem, since gender differences also may be related to

the type of public library. Leckie and Hopkins (2002, p. 342) found that males were a much higher proportion of the patrons of two large central public libraries than is true of public libraries in general.

As to the age of the typical public library user, that is more difficult to determine. Vavrek noted (p. 62) that one survey showed the largest proportion of users to be in the 25–34 age group, while another survey showed the 35–44 age group as the most frequent users. Vavrek himself comments (p. 62) that both may be incorrect since the 13–18 age group was not included in the studies and may, in fact, represent the largest group of patrons. Along a similar line, Smith (1999) notes that "children use public libraries more than adults, with use peaking at about age 10 to 12 when children become more independent in their reading choices" (p. 307). In terms of the use of large central libraries, Leckie and Hopkins (2002, p. 342) found that the patron profile of the two central libraries studies was relatively young: over half of survey respondents were under 34 years of age.

Regarding the overall usage of public libraries, the PLA statistics (2004, 78–79) show that registered library patrons each borrow between 11 and 17 items per year, on average. On a per capita basis, public libraries circulate 7–15 items, record about 4–6 visits per patron per year, and conduct about 1–2 reference transactions. These numbers would, of course, be higher if only registered borrowers were considered. When taken as overall average numbers rather than per capita, the PLA data show that American public libraries had over 757 million visitors coming through their doors, circulated something like 1.3 billion items, and conducted on the order of 212 million reference transactions (PLA 2004, 109–110). Similarly, in Canada, the "typical public library answered 26,000 queries, circulated 265,000 items and facilitated on-site use of 99,000 items" (Schrader and Brundin, 2002, p. 34). Wiegand (2003) has commented that:

American libraries have done three things exceptionally well in the past century... they have (1) made information accessible to millions of people on a variety of subjects, (2) provided tens of thousands of places where patrons have been able to meet formally as clubs or groups, or informally as citizens or students utilizing a civic institution and cultural agency, and (3) furnished billions of reading materials to billions of people (p. 370).

Thus despite threats to their wellbeing due to budget cuts and other imperatives, and although their roles and usage perhaps have been overshadowed by dominant commercial interests and various elements in the cultural landscape, North American public libraries currently seem to be thriving.

### B. The Nature of Public Library Collections

Public library collections are as varied as libraries themselves and the communities that they serve, so it is very difficult to make sweeping generalizations about the types of collections that they might contain. However, there are a few common observations that can be made safely about public library collections in the early 21st century.

First, any discussion of information-seeking in public libraries would not be possible without one fundamental assumption, and that is that public libraries have a collection of resources and materials that the public wants to use and consult and thus they will seek the information they need at the library. However, the importance of good library collections to the public has been downplayed and the description of the public library as "the people's university" has gone out of fashion. In their research about central libraries, Leckie and Hopkins (2002) found that the public places a high value on comprehensive and complete collections, and that study participants frequently expressed fears that library collections would be diminished. The authors comment that:

Given the diversity of reasons for searching for information, the importance of the breadth and depth of the central library's collection cannot be overstated.... Large research-level collections usually are associated only with university libraries, but it is clear from this study that the public needs and wants access to a high quality, comprehensive public research collection, including both print and electronic resources (p. 355).

Second, contemporary public library collections are increasingly diversified. Books, periodicals and newspapers continue to be the backbone of library collections, but music CDs, sheet music, videos, DVDs, maps, photographs, audio books, electronic books, video games, full-text databases and other non-print items are also important materials, particularly for certain groups of users. Videos, music and related AV materials, for example, account for a significant proportion of circulation (Oder, 2002) and can be a catalyst for attracting new patrons to the library. A further element of collection diversification is that public libraries currently act as gateways to a wide variety of information resources. They do this in a number of ways, including, for instance, library bulletin boards and programs, reference referrals to other institutions, recommended Internet sites, and connections to community networks. Pettigrew *et al.* (2002) demonstrate that online community information networks accessed through the public library are now an important component of many people's everyday information-seeking.

Third, most public libraries today have a high proportion of their holdings in fiction for both adults and children. The precise proportion is

very difficult to pin down because major statistical sources do not distinguish library holdings by fiction and non-fiction. However, most public library watchers would agree that the majority of items circulated by public libraries are works of fiction, with estimates varying from about 60% of circulation, to as high as 80% or more (Ross *et al.*, 2002; Smith, 1999; Shearer, 1996a; Van Fleet, 2003; Wiegand, 2001). After studying the circulation records of one public library, Smith (1999) makes the point that "of 30 hardback and paperback best-sellers of 1997, which were in stock, between 80% and 90% of all copies were on loan" (p. 309). The data shows that consistently, across public libraries, there is high demand for fiction of all types, but current fiction is particularly popular. Unfortunately, as Van Fleet (2003) has pointed out, public libraries have long been ambivalent or even dismissive about popular fiction despite the growing body of research showing the beneficial impacts of reading fiction.

Fourth, public libraries have a wide variety of specialized collections which are immensely useful to patrons seeking very particular sorts of information. Examples of special collections include genealogical resources, local history collections, photographic and visual arts collections, auto repair and other specialized manuals, foreign language collections, government documents, rare books and many others. Some special collections are a real drawing card for the public: genealogical and local history resources, in particular, are very popular and heavily used, especially with more of these collections online (King, 2003; Litzer and Barnett, 2004). McClelland (2004) notes that:

Local materials are the most valuable part of a library's collection because they are so rare, unique and often irreplaceable. Acquiring local materials will attract visitors to your library, whether they be genealogists intent on finding the missing link in their family tree or the student who has to complete a project on some well-known local figure (p. 75).

Fifth, all public library collections have gaps of some sort. Budgets are limited, community needs vary and choices have to be made about the materials that can be purchased. There is a considerable body of research about collection gaps and biases and it is not possible to review all of it here. Collection evaluation studies are usually of two types: looking at the collection from the perspective of serving a particular user group (Rothbauer and McKechnie, 1999; Spence, 1999) or regarding a weakness in particular topical areas (Budd and Wyatt, 2002; Dilevko and Atkinson, 2002; Webster, 1998). Both types of gaps have a great potential to affect the ability of certain patrons to find and use materials of interest to them. However, outright collection gaps are not the only problem since there are

also other more subtle biases that creep into the materials selection process. Dilevko and Gortlieb (2003) demonstrate that a respected, standard selection tool such as the Public Library Catalog has a variety of "ideological frames" (p. 291) built into it, including an imbalance of perspectives, overemphasis on only some aspects of topics, and lack of inclusion of popular works. In terms of selection for different patron groups, Baker and Wallace (2002, p. 24) cite the example of one public library which mistakenly thought that its largest clientele was mature Anglo women. Since these patrons tended to talk to librarians more, selection decisions were made to support their interests. However, further analysis revealed the largest user group was actually young adults, whose needs had been relatively ignored. To ensure that a public library's collection is balanced and meeting the needs of its community, public librarians first need to understand the profile of their community and the community's information-related needs (Nelson, 2001). Gaps in the collection then must be identified and steps taken to rectify those gaps.

Sixth, the collection development strategies and priorities of public libraries change over time in part because the topics that are of interest or relevant to the public also change over time (see, for instance, the annual book buying survey in the February issues of *Library Journal*). A good example is consumer health. Twenty years ago, not many public libraries had large collections of consumer health materials, but within the past decade, this has begun to change quite rapidly. Consumer health is now an area that is receiving a lot of attention from public librarians, library patrons and other information providers (Allcock, 2000; Baker *et al.*, 1998; Gillaspay, 2000; Huntington, 2004; Lyon, 2001). There is even now a text devoted to the provision of consumer health information (Baker and Manbeck, 2002). However, catering to changes in public tastes can be problematic for libraries. Budd and Wyatt (2002) note that there has been a longstanding debate as to whether public libraries should develop collections based on public demand, or the quality of titles. Their study indicated that, for the most part, public libraries try to do both. Alabaster (2002) recommends starting with a solid core collection as the foundation to meet a wide variety of information needs.

Finally, access to collections may be just as important as the collections themselves. The library satisfaction survey conducted by D'Elia and Rodger (1996) showed that a great deal of patrons' satisfaction with libraries has to do with the availability of information about how to access collections. Access can be provided in numerous ways, including displays, book lists, signage, suitable shelving, user-friendly library catalogs and reference services. In an interesting study of catalog access, Kreider (2000) examined patrons' use of subject headings at the

Cleveland Public Library. She makes the point that while LC subject headings usually succeed in providing access to topics of general interest, they are "largely lacking in coverage of specialized topics and local interest" (p. 129). The library has a number of specialized collections (involving chess, folklore, Orientalia, auto repair manuals, public administration documents and photographs) for which there were inadequate LC subject headings. Also, the library wanted to provide subject headings for adult fiction and juvenile materials. Accordingly, to meet the information-seeking needs of their patrons, the library developed unique headings for their special collections which they then submitted to LC for approval, a process that Kreider felt had worked well for the library and its clientele. Kreider's research raises a very important issue, namely that any collection with inadequate access may very well go unused, no matter what its importance.

### C. What is the Public Seeking Information On?

What do members of the public use the library for? The answer to that depends, in part, on what questions are asked, so comparing surveys is quite difficult. Nonetheless, some trends are apparent. The study conducted by D'Elia *et al.* (2002) found that the top reasons for using the library were to: (1) find information, (2) find information on personal interests, (3) borrow items for personal enjoyment, (4) research personal projects, (5) find local history and genealogy materials, and (6) find government information. Slightly different findings in three surveys discussed by Vavrek (2000) were that about half of library patrons used the library to borrow books, followed by using reference services and attending programs or meetings in the library. Borrowing books was also the main service used by the vast majority of patrons in the United Kingdom (Smith, 1999, p. 307). The participants in the Canadian study by Leckie and Hopkins (2002) indicated that their primary reasons for visiting the central library were to, in order of frequency (1) look for information on a topic, (2) borrow/return materials, (3) read, (4) study, (5) use the Internet, (6) browse, (7) photocopy, and (8) use e-mail. In Vavrek's review (2000), citizens said that their main purpose in visiting the library was for "enjoyment or hobbies" (p. 62), followed closely by doing school or class assignments, and finding information for personal use, such as on health or consumer issues.

The Counting on Results study (Steffen and Lance, 2002) demonstrates that libraries are used for an extremely wide range of purposes, from meeting new people, to enjoying a concert, to obtaining a specific fact or document. Furthermore, the authors suggest that demographic



most popular subject headings had to do with medicine, business, finance, animals, sports, language, home improvement, cooking, crafts and collectibles. Medical topics were by far the most commonly searched. Furthermore, Kreider found that patrons were making good use of the unique subject headings developed for the library's special collections. For example, the library facilitates access to its auto repair manuals by providing headings for specific models of cars instead of just the manufacturer's name. In addition patrons readily used the subject headings assigned to the adult fiction and juvenile materials. Providing appropriate subject terminology, therefore, has quite a bit to do with what patrons can find to meet their information needs.

With respect to non-print formats, Oder (2002) reports on a survey of 407 American public libraries which found that 60% of the video collection is fiction and that "circulation of feature films understandably outpaces that of nonfiction video" (p. 39). Along these lines, Smith (1999) found that most people borrowed current adult feature films and that educational videos were a much smaller percentage of total video borrowing. Children's videos borrowed were primarily "cartoons and Disney films" (p. 310). As for music, Oder's findings were that music CDs generated high circulation but since they are so popular, are very prone to theft. Smith notes that "people borrow the same music CDs and cassettes from public libraries as are sold in shops" (p. 310). Smith found that about 54% of the music borrowed from the library he examined was rock-and-roll and popular performances [rock/pop] which corresponds very closely to the percentage of rock/pop discs sold (56%). Also, about one quarter of music borrowed from the library were Top 40 hits, which is comparable to Top 40 discs as a percentage of all music sales. Smith concluded that as far as video and music borrowing goes, the public primarily want to borrow items that are popular at the moment.

#### D. Browsing, Information Encounters and the Self-Help Philosophy

Information-seeking is often thought of as an active process by purposeful human agents. However, one aspect about the public's information-seeking that is not considered as often as it should be is that a certain amount of information is gathered serendipitously or passively.

The role of browsing in public library information-seeking cannot be overstated. As any public services librarian knows, a large number of library patrons never use the catalog and do not ask for help, preferring just to roam the stacks in areas of interest to them. Baker (1996) confirms this, pointing out that numerous studies have shown that fiction readers

variables play a very large role in what patrons do at the public library. For instance, age was found to be the most statistically significant factor influencing what patrons use the library for. Youth tended to use the library to study and use computer resources. Adults used the library for focused research and reading materials, while seniors used the library for recreational activities, learning and educational purposes (p. 278). The findings suggest that overly convenient categorization of patrons' library experiences may do a disservice to the true breadth and reach of public library services.

We might expect that members of a heterogeneous public would have information needs that are just as diverse as they are, and this seemingly common-sense fact appears to be true much of the time. The particular sorts of information that people seek could be about anything and everything. Leckie and Hopkins (2002, pp. 347-348) note that interviews with central library patrons revealed a very wide array of information needs, from auto repair and aviation history to painting, travel, religious study and welding. Despite the potentially wide variety of areas of interest to the public, there are some topics that seem to be more popular than others. Marcella and Baxter (1999b) found that respondents in their study were more likely to go to the public library for information related to leisure and recreation, educational needs, health care and legal concerns.

Smith (1999) noted that, from British circulation data, the most popular categories of non-fiction were, in order, health and the body, computers, business, languages, law, do-it-yourself, history, literature, the paranormal, society, parenting, myths and the environment. More recent American data (Hoffert, 2004) indicates that the most popular areas of public library collection purchasing are in medicine and health, how-to books, biography, history, cooking, arts and crafts, travel, self-help and psychology, and computers and technology. While generally useful, categorizations of borrowing have to be scrutinized carefully since, as Baker and Wallace (2002, pp. 64-65) point out, types of borrowing vary considerably by locale, age, and gender. For instance, one Australian study found that women were more likely to have read craft books and romances, while men were more likely to have read hobby and self-instructional books. Older people were more likely to have read religious books than younger people (Baker and Wallace, 2002, pp. 64-65).

Another way of determining what the public is interested in reading is to look at what they are searching for on the online public access catalog (OPAC). Kreider (2000) analyzed the subject searches from 1250 OPAC transactions of the Cleveland Public Library. She found that the

like to browse and select books for themselves. One study cited by Baker showed that over 80% of the fiction borrowers in the study had not used the catalog to find the books that they wanted to read. In terms of non-fiction, often patrons do not have a specific work in mind to meet their information need, and so browsing becomes a way of exploring possibilities about what books look like they might be helpful, or narrowing down the topic.

Undoubtedly two of the most thorough reviews of browsing are those done by Goodall (1989) and Baker (1996), who examined all of the research about browsing conducted up to the time of their reviews. Some of the findings from the studies they cite include:

- well over half of the participants chose their books by browsing;
- browsing was influenced by factors such as cover design, the book blurb, print size and the height of shelves;
- patrons become accustomed to the shelf arrangement in their public libraries and expressed satisfaction with it even when it often frustrated their attempts to browse;
- most patrons chose books using a combination of browsing and known authors;
- only about 20% of patrons were looking for specific books;
- patrons not looking for specific books often did not know what to look for;
- about half of library patrons did not find what they wanted on their visit to the library;
- when patrons did not find the fiction titles that they wanted to borrow, they substituted other titles;
- over one-third of respondents chose any book that looked interesting, and
- those who chose books that looked interesting were least likely to have enjoyed their books.

Goodall expressed concern at the time that public librarians generally were not aware of the research on browsing and so she made a number of recommendations about how browsing could be facilitated better. Some of those recommendations included: (1) arranging fiction into sections by genre or alphabetically, (2) regular weeding to keep the shelves from becoming too crowded, which inhibits browsing, (3) developing more imaginative displays, (4) providing more reading lists and handy book-marks, and (5) having reference guides to fiction readily available in the fiction area. Today, many of these suggestions are routinely incorporated into recommendations for the development of effective Readers' Advisory services (Burgin, 2004; Shearer and Burgin, 2001).

Browsing is also highly related to information encountering, although the two are slightly different processes. Erdelez (1999) defines information encountering as the "unexpected discovery of useful or interesting information" (p. 25). Encountering also refers to the accidental discovery of information or incidental information acquisition (Williamson, 1998). Encountering often occurs when a patron who is searching for information on one topic or who is carrying out some routine activity accidentally finds helpful information on another topic. Erdelez points out that not all patrons encounter unexpected information and even for those who do, not all regard accidental information as being part of their information behaviors. However, there are some individuals who "encounter information on a regular basis and perceive it as an important element of their information acquisition" (p. 26). Williamson (1998) notes that for the seniors in her study, information acquisition through everyday monitoring of media and through conversation was common and that the incidental information gathered often was used later in another situation. Erdelez suggests that information encountering has many implications for library service, including helping to explain certain patron behaviors and interactions in the reference interview, and for improving online searching to allow patrons to more easily capture the information they accidentally encounter. Information encountering also emphasizes the need to keep collections well organized and weeded to facilitate browsing for the cross-pollination of ideas.

The principle underpinning browsing and many other activities that patrons engage in within the public library is that of self-help. Self-help has been built into the very foundations of the public library. Since its inception, public libraries were seen as institutions of self-help, where the ordinary citizen could have access to a wide variety of materials to educate and develop him/herself (Shera, 1974, pp. 226-237). Today, self-help and self-service are ingrained and endemic as fundamental operating principles across a wide variety of institutions such as banks, retail stores, recreational facilities, educational institutions and various government agencies. It is not surprising, then, that public library users expect to be able to find basic library materials for themselves, and often prefer to do so (Armstrong, 2001). In their research, Marcella and Baxter (1999b, p. 119) found that the top three preferred methods of obtaining information by the public included talking face to face with someone, reading a book and looking through a collection without help from the staff. This latter point emphasizes the fact that a great many people want to be able to find library materials on their own and have an expectation that they should be able to do so. Whether they can successfully navigate, by themselves, the systems put in place to help them is another matter.

### E. Reading as Information-Seeking

Information-seeking, reading and the use of library collections are inextricably linked. Although there are other ways of seeking and acquiring information (such as viewing images or listening to tapes), the vast majority of information-seeking in the public library involves reading. Whether the reading is of paper copy or electronic text is of no importance—reading is taking place every day, in every public library. As Leckie and Hopkins demonstrate (2002) from their observational seating data, reading is often the major activity occurring in the library at any point in time.

Reading, of course, is the end point in the information search and is the way in which the information need is ultimately satisfied. No one would doubt that a patron who asks a question about how to do certain home repairs, is then helped to find an appropriate book and finally takes the book home to read about specific repairs is engaging in information-seeking. We tend to associate information-seeking with giving the patron knowledge that s/he currently does not have and/or solving a problem for the patron. Through reading, the patron becomes informed and a book on home repairs certainly has the potential to do exactly that. But what about reading for pleasure?

Some scholars, such as Wayne Wiegand, contend that reading in general, and reading for pleasure in particular, has been undervalued as a library activity. The undervaluing, he suggests, starts with “library and information science programs across the country [that] almost totally ignore the literature on the social nature and act of reading” (2001, p. 9). Wiegand believes that the undervaluing of reading, as a cultural phenomenon, has occurred during the period of modernity, where the “stories that the state regarded as so essential to the social order” were institutionalized while “the communication of stories—no matter what their cultural form—became categorized as leisure and thus trivialized by the dominant culture” (p. 10). As a result, Wiegand notes that a higher priority came to be placed on “useful information” rather than the stories that people wanted to read. To overcome the subtle biases against popular fiction and to better meet the needs of library patrons, Van Fleet (2003) recommends that librarians need to be better educated about the socio-psychological role of popular fiction reading and pay closer attention to good selection practices for popular fiction collections.

Reading for pleasure is most often associated with works of fiction. As has been noted, contemporary public libraries have large fiction collections and the public is reading these collections avidly, even though, as Chelton (1999) points out, “public libraries have at best had

an ambiguous relationship with fiction” (p. 42). An interesting issue to consider, then, is the relationship between reading for pleasure and what we regard as information-seeking. Are pleasure readers, and more specifically fiction readers, seeking information? On the surface of it, yes, they are seeking information about what to read: about different fiction genres, authors, types of stories, publishers, award winners and a whole host of other things related to fictional works. In this sense, fiction readers are no different from other patrons who approach the reference desk with a particular problem-based or knowledge-based question, such as how to repair a crack in a plaster wall. All the principles of good reference service and the reference interview (as discussed in section III.B) apply to both fiction and non-fiction readers alike.

Looking at the issue at another level, though, what about the actual act of reading fiction? Does reading fiction for pleasure inform the reader in the same way that reading for education or problem-solving does? Is reading fiction really just another form of information-seeking? The answer to that question is complex, perhaps even more complex than we might imagine. In a study of 194 adults who read extensively for pleasure, Catherine Ross (2000; 1999) has explored this question in some detail. She found that even though readers of narrative stories often stated that they read merely to be entertained, further probing revealed that a certain book or books had made a difference to their lives in major ways. Examples included causing the reader to see a new perspective, providing a role model for identity, giving courage to make a change, or facilitating a greater understanding of the world (as in the case of reading *Freedom at Midnight*, a fictional account of the partition of India). Ross’s research demonstrates that, in addition to being entertained, fictional works can indeed be informing for the reader.

Moreover, reading for pleasure is not solely confined to fiction, as Shearer (2004) and Ross (2004) both stress. Many people read both fiction and non-fiction for pleasure, while some read more non-fiction for pleasure than fiction. Readers have a wide variety of reasons for reading non-fiction, including to become more knowledgeable in general, to indulge in a favorite interest or theme, to discover something new, or to be inspired by what other people have done with their lives. Furthermore, Ross (2004) notes that for some people, the line between fiction and non-fiction is rather blurry and what is important is the topic or genre (e.g., war stories, whether fictional or not). Wiegand makes a similar point when he states that patrons of public libraries are “coming primarily to fulfill needs and interests satisfied largely the act of reading, and what they read is largely the stories (e.g., biographies, mysteries, Civil War battles, Newbery–Caldecott winners, romances and African–American diaspora narratives) that

contain the cultural information they value" (p. 8). As an example of non-fiction pleasure reading, Shearer (2004) mentions that two very popular areas are how-to books and advice books. He suggests that "the expectation of the reader of a how-to book is that such a book may make a difference in what the reader is able to do after reading it... the reader hopes for a practical, positive difference in the experience of life" (p. 77).

Overall, then, it seems that the boundary between reading for pleasure and seeking information is far more permeable than has been thought of. Reading has a strong informing component no matter whether it is fiction or non-fiction works that are being read and thus we should remember that reading for pleasure warrants far more attention under the rubric of information-seeking than it has received to date.

### III. Information-Seeking and Reference Services

#### A. The Information-Seeker and General Principles of Reference Service

It could be argued that the best window on the information-seeking habits of the public vis-à-vis public libraries is through a consideration of reference services and transactions because the thoughts and actions of the public while seeking information are often manifested through interactions with reference librarians and other public services staff. It is not our intent in this section to review the voluminous literature on how reference services ought to be organized and conducted to provide the most effective service to the public. Rather, our goal is to examine key works that are useful in terms of gathering together the explicit and tacit knowledge that professional librarianship has developed over the years about the information-seeking behaviors of the public.

Two of the classic and most longstanding works in reference librarianship are Richard Bopp and Linda Smith's edited work *Reference and Information Services: An Introduction* (2001), and William Katz's *Introduction to Reference Works, Vols. I and II*, (2002). Both have been used as texts in countless reference courses in library science programs worldwide. Popular teaching tools such as these have the power to influence how future librarians come to regard not only the provision of reference services in general, but also the patron and the information-seeking habits of the public. What do they say or suggest about information-seekers and the librarians whose work it is to assist them?

The Bopp and Smith text begins by noting that searching for information is frustrating, overwhelming and confusing and that a fundamental role of librarians is to assist library patrons in their quest

for relevant information. In the opening chapter, which examines the history of reference services, the authors point out that libraries "try to make access to the information they contain user-friendly" (Bunge and Bopp, 2001, p. 3) and for many patrons, this works quite well at times. Nonetheless, patrons often will "confront barriers to finding what they need, whether it be their own time limitations, lack of knowledge of what sources exist or how to find and use them, or the sheer size and complexity of the world of information" (p. 3).

Katz (2002) extends some of these ideas a bit further. He notes that people want information for personal decision-making, and that they aren't too interested in how that information is obtained. Katz refers to studies that have shown that people place a high value on receiving information from personal sources, such as friends and family (which he refers to the back-fence method of information-seeking), as well as from their own personal library, including Internet bookmarks. Other research supports these contentions; for instance, Marcella and Baxter (1999b, p. 119) found that the major methods of obtaining information by the public included, in order of importance:

- talking face to face with someone;
- reading a book;
- looking through a collection without help;
- reading a newspaper;
- talking to someone by telephone;
- listening to the radio;
- watching television;
- reading a leaflet/pamphlet;
- using a computer;
- reading a magazine, and
- writing a letter.

Thus, for most people, ease and convenience are important when seeking the information they need. Only while these convenient and well-understood mechanisms have failed will people seek help from the formal system, including libraries (Katz, Vol. II, pp. 30–31). Libraries, though, are not always particularly well organized to meet patrons' needs. Katz notes that although libraries have used standard divisions of knowledge (i.e., by disciplines) to organize their collections, "people rarely seek information within those specific, logical areas" (Vol. II, p. 18).

Underscoring the philosophy of self-help, Katz further suggests that many patrons will not naturally seek assistance from reference librarians unless there is good signage and other mechanisms to make it obvious that reference assistance is readily available. Yet in an era when there is

information overload from a variety of media and other sources, most people could use some assistance in wading through the glut of information to find what they need and in understanding how information is organized in the public library. Thus, according to Katz, since the ability to find and process information is very difficult, "reference librarians should see their primary function as one of assisting in this important processing operation" (p. 19).

Since patrons could ask questions about almost anything, what types of reference services should be provided to best help the patron? According to the authors included in the Bopp and Smith text, there are a variety of approaches that could or should be employed, including services to deal with ready-reference questions (including virtual ready-reference), bibliographic verification and interlibrary loan, community information and referral, more in-depth research questions, readers' advisory and information literacy instruction.

Not only must librarians provide services that anticipate the myriad of questions that patrons may ask, they must also strive to elicit those questions successfully through carefully conducting individual reference interviews, which is discussed in more detail in section III.B. But as to the general purpose of the reference interview, Bopp comments that it is "essentially a conversation between a reference staff member and a user, the goal of which is to ascertain the user's information need and take appropriate action" (Bopp 2001, p. 47). The author hastens to point out that the reference interview, "although a conversation... is not casual" (p. 47) and requires discipline on the part of the librarian to be successful. Katz describes the reference interview as "an art form with different responses for different people, different situations" (p. 125) and stresses that although there are some general principles, much of the time the reference interview will be unique to a person and a situation. In that regard, the Bopp and Smith text notes that the role of the librarian in conducting the reference interview is very similar to that of other professionals, such as health care practitioners, who also act in a helping capacity and must elicit information from their clients, all of whom have slightly different needs.

Why is the reference interview important? It is important in part because the goal aspired to by most reference librarians is to answer patrons' questions well and direct them to resources that actually satisfy their information needs. Librarians take pride in their abilities to help patrons and so the old debate (reinvigorated by a 1986 article by Hermon and McClure; see also Durrance, 1989) over what percentage of reference questions are actually answered correctly continues to be a source of

irritation for the profession. Following this, the reference interview is key because interactions between librarians and patrons can frequently go awry unless care is taken to prevent miscommunication from happening, as section III.B will show. Finally, from an organizational standpoint, the reference interview is important because "the librarian's ability to clarify the exact nature of the user's information need has been identified as a key element in user satisfaction with reference service" (Bopp, 2001, p. 47).

Not only do reference librarians have to be skilled at the reference interview, Rubin (2001, in Bopp and Smith) stresses that they also need to act according to certain ethical principles with respect to patrons and their information-seeking (p. 34). Three of the most fundamental principles are (1) protecting the privacy of information-seekers and the confidentiality of their queries, (2) respecting intellectual freedom and open access to information, and (3) respecting the intellectual property of others (i.e., copyright and other proprietary rights). Because the public may not always be cognizant of these principles when seeking information, it is sometimes necessary for reference professionals to articulate them in their interactions with library patrons. One of the most difficult of these principles to uphold is intellectual freedom, where the very real result is that one patron's request to remove certain material has the potential to affect the abilities of many other patrons who wish to find and use that same material. Although there are guidelines and suggested procedures for dealing with challenges to material (American Library Association, 2002), it still may be a very problematic area for reference librarians who have to work with the public daily and defend the concept to them. It may also be difficult for librarians who personally find certain materials offensive but are professionally bound to defend the public's right to view them (Harkovitch *et al.*, 2003).

The ability to work directly with the public, particularly in conducting the reference interview, does not come naturally for all librarians. Accordingly, Bopp (2001) suggests that librarians need to develop characteristics which will enable them to refine their expertise in this area, including developing a desire and commitment to help, improving the ability to focus and concentrate fully on one patron and his/her need, showing sensitivity towards the patron's need, cultivating patience, and continually developing a broad knowledge of varied public interests as well as a solid in-depth knowledge of a myriad of information sources and subject specialties (pp. 49-51).

Finally, because of the uncertainties inherent in the public's information-seeking processes, Bunge and Bopp (2001) point out that

working with the public is difficult and even debilitating (p. 18), so that stress and burnout are very real concerns for reference librarians. In addition, again due to the uncertainties and complexities of information-seeking, it is quite likely that reference librarians are going to encounter "angry or upset users" (Bopp, 2001, p. 64). This same author comments that:

the very nature of reference materials — their noncalculating status, the self-help component often necessary in large libraries, the difficulty of accurately using and interpreting computerized catalogs — and the very imperfect nature of human beings inevitably lead to expressions of frustration and even anger from library users. Sometimes it is restrictive library policies that irritate them, sometimes it is incomplete library collections or insufficient or inadequate service from library staff... Reference librarians need to be prepared to deal effectively with the encounter (p. 64).

From the points presented above, the characteristics of typical public library information-seekers include the following:

- they may be self-sufficient and be able to find relevant information using various library systems some of the time;
- patrons may encounter useful information on a topic serendipitously, often in their search for information on another topic;
- they are likely to feel confused, overwhelmed, and/or frustrated in their search for information at some point. When an information-seeking experience is not fulfilled or goes seriously wrong, some patrons may react in anger or frustration;
- most patrons do not have knowledge of all the possible sources of information available;
- there is a strong possibility that patrons will have to seek help from a librarian or other staff member at some point;
- their need for assistance is on a continuum, from queries requiring a relatively straightforward factual answer (i.e., what is the population of India?) to a difficult in-depth search requiring multiple sources and formats, or even a referral to outside sources or agencies;
- patrons may not be able to adequately articulate their queries and/or the librarian may not fully understand those queries, so a carefully constructed reference interview is paramount;
- their stated needs for information and the actual needs for information may, in fact, differ. Patrons often have more complex information needs than their initial questions would suggest, and
- they have an expectation that the librarian will do whatever is necessary to assist them in clarifying the information need and finding appropriate resources.

Reference librarians have to cope with these features of the public's information-seeking on a daily basis. It would be easy to imagine that many reference librarians would feel quite overwhelmed by the difficulties inherent in filling the public's information needs, but this generally does not seem to be the case. Rubin (2001, p. 30) suggests that the reason for this has to do with the development of a strong sense of purpose in reference librarianship. He demonstrates that, over time, a service ethic has developed that fosters the belief that reference librarians should do the most that they possibly can to answer patrons' questions and to help them find appropriate information (in other words, provide the highest level of service possible). This belief is widely held and has been codified in guidelines adopted by the Reference and User Services Association (1996) as well as similar guidelines put forward by other groups. Dealing with the vagaries of the public's information queries, then, is seen as both a professional duty and challenge.

### B. More on the Reference Transaction

Undoubtedly the single largest area of professional literature that deals with the specific elements of providing reference services is that devoted to reference transactions and the reference interview. An excellent summary of the reference transaction literature was provided in a previous review by John Richardson (2002), and we do not intend to replicate that here. Instead, we will concentrate on selective studies that specifically address various aspects of information-seeking at the reference desk.

It is clear from the sheer volume of writing on the topic that understanding and responding to the queries of the public is not a straightforward task for library staff. But what exactly are the particular issues related to the information-seeking questions of the public as presented at the reference desk? A number of studies have tried to answer this by examining various elements of the reference transaction or interview in detail.

A good starting point is the work done by Catherine Ross and her colleagues in a series of important articles relating to their Library Visit Study. This large multi-year study has come about from an ongoing class assignment in the required reference services course of the MLIS program at the University of Western Ontario in London, Ontario. The purpose of the "library visit" assignment is to sensitize students (as possible future reference librarians) to how it feels to be a member of the public needing to find out information on some topic. Each student is required to go to a library and ask a reference question, and then complete a questionnaire evaluating their experiences, compose a very

precise and detailed account of what was said by all parties, what actions and behaviors occurred, and what outcomes were achieved, and summarize what parts of the experience they found helpful and not helpful.

Over the years, hundreds of library visits have been conducted and analysed, with 70% of them being in public libraries (Ross and Nilsen, 2000), so the assignment has yielded a wealth of information about what actually takes place between public library reference librarians (or other staff members) and information-seekers. Ross and Dewdney (1994) and Dewdney and Ross (1994) summarized the findings of the early library visits, including 52 visits to public libraries, by compiling some of the best and worst practices in reference encounters. In general, the authors found that the patron seeking information was more likely to have a positive feeling from the encounter if certain identifiable behaviors on the part of the reference librarian were present, including:

- looking up and smiling;
- approaching the patron;
- really listening to the request;
- guiding the patron to an area rather than pointing;
- explaining what the librarian was doing and why;
- asking questions that clarified what the patron really wanted;
- seeming genuinely interested in the request;
- was knowledgeable about sources;
- was willing to investigate further and was not discouraged, and
- asked the patron to come back if she/he didn't find the information.

Unfortunately, almost half (46%) of the participants who asked their questions in public libraries felt that the reference librarians they encountered were not helpful and did not exhibit the behaviors noted above. Participants encountering these librarians stated that they would be unwilling or were not certain that they would return to those librarians again to ask another question (Ross and Dewdney, 1994, 262). Examples of bad practices on the part of reference librarians included:

- unwelcoming body language and not looking up;
- not really listening;
- not conducting a reference interview to clarify the question;
- didn't seem to regard the question as important;
- implying the search was futile;
- not following up to see if suitable information was found, and
- not volunteering any explanation of the various steps in the search.

As a whole, these poor practices could suggest to information-seekers that their questions were really just too much of a bother for

some reference librarians to deal with adequately. In the library visit study, information-seekers were often told to go and look in the stacks at a particular call number, with little or no follow-up by the librarian to see if anything useful was found (called unmonitored referrals). Ross and Dewdney (1998) suggest strategies like this are a way of "getting rid of the user" (p. 153) in order to bring closure to the reference transaction, particularly in the face of a seemingly endless stream of other patrons who also need assistance. However, since the end result of unmonitored referrals is that the information-seeker often leaves empty handed or with less-than-ideal information, the closure is regarded as negative. Unmonitored referrals are not the only strategy of negative closure; others include trying to get the patron to accept less-than-adequate information, warning the patron to accept defeat, claiming the information does not exist, signaling nonverbally that the transaction is over and many other similar strategies.

From an information-seeking perspective, the interesting part of negative closure is that information-seekers often fight back and resist the attempts of the librarian to end the so-far unsuccessful transaction. Ross and Dewdney (1998) refer to these as counter-strategies (p. 157), and they include returning to the reference desk, refusing to accept a referral elsewhere, playing dumb, refusing to accept the answer provided, keeping the process going by talking, proposing a different course of action, or starting the process again with another librarian. Information-seekers in the public library are, it seems, quite persistent and are able to readily recognize when their interests are not being served.

Taking all the poor practices noted above into account, one of the more serious implications of the Ross and Dewdney research is that the reference interview, long advocated as the backbone of good reference service, may have been in danger of falling into disuse by the mid-1990s and perhaps even still. At the time, Ross and Dewdney (1994, 265) suggested that it was all too easy for librarians to consult a computer, write down something on a piece of paper and hand it to the patron, which usually resulted in a very poor outcome for the information-seeker. Reflecting on this more recently, Ross (2003, p. 40) reiterated that the reference interview is one of the most essential components of responding to the public's information-seeking but unfortunately, it happens only about half of the time. Ross states that she is "willing to make a bold claim: a reference interview (the asking of one or more questions intended to discover the user's information needs) must be conducted in every transaction" (p. 39). She goes on to comment that "the institutions that will survive into the twenty-first century and beyond are those that serve their clients and give them the help they need" (p. 39).

As the studies noted above demonstrate, the information-seeking endeavors of the public can easily go wrong, so reference librarians are encouraged to become very skilled at the reference interview. The reference interview is, in reality, a complex series of related practices that are enacted in concert, and each step in the process is important as a lead-in to the next step. As Ross *et al.* (2002) point out, the first 30 seconds of the interaction can make or break what follows. Librarians must work at becoming adept at question negotiation and interpersonal behaviors (such as eye contact) that facilitate a good outcome for the information seeker.

Conducting a good reference interview, however, does not in itself guarantee a successful transaction, although it certainly will go a long way towards that goal. One of the primary reasons why difficulties arise within the reference interview has to do with the very nature of communication between people, in this case a librarian and a patron. Dewdney and Michell (1996) took a look at several hundred communication mishaps at the reference desk that were reported by librarians and found a number of different kinds of common communication problems, which they organized into classes depending on their severity. Some of the typical accidents analyzed included: failing to hear clearly what the other person had said, pronunciation problems, homophones (such as Turkey vs. turkey), synonyms, memory problems (e.g., asking for Animal Graveyard instead of Pet Cemetery) and communication problems carried over from a previous situation (e.g., the student asking for the book "*Oranges and Peaches*" because his instructor had told him to, when the book actually was "*The Origin of the Species*").

Dewdney and Michell (1996, 532–534) discuss how reference librarians can cope with communication mishaps, beginning with a better understanding of why patrons ask certain types of questions and the assumptions or mental models about the library that they often carry with them when seeking information. The authors suggest that patrons have quite a simplistic view of libraries, believing that they are for the most part organized by subject but also by format, thus causing them to ask questions about where they can find a particular subject or format rather than about their specific need or problem. Two assumptions made by patrons are: "that (i) if only they can locate the section or subject area, they will be able to find the answer to more specific questions by themselves, and (ii) librarians know where these locations are because it is their job" (p. 532). Hence patrons "present their information needs as questions about subjects or locations rather than as problem-centered statements [such as] I want to get rid of whiteflies on my aspidistra" (p. 533). Unfortunately for the information-seeker, problem-centered statements are far more likely to give the librarian a better starting point for the most appropriate assistance.

Furthermore, as Pyati (2003) points out, communication is not just a matter of understanding language, but also cultural practices. She comments that many limited-English users came from countries that did not have a tradition of public library service and therefore may not regard the public library as an agency that can help them. If they do use the library, they are often reluctant to ask for help and are referred to as "passive information-seekers" (p. 267). The role of gatekeepers in various ethnolinguistic communities is not well understood. Would gatekeepers be more likely to use the public library and thus act as an entrance portal for other members of the community? More research on these questions is needed. Pyati suggests that reference librarians in libraries serving multilingual communities need to have increased cultural sensitivity and should have a training program to help them develop the intercultural aspects of the reference interview. Ross *et al.* (2002) offer other specific suggestions for reference librarians working with patrons for whom English is a second language, including avoidance of jargon and negative questions, using simple, clear sentences, checking often for comprehension and using visual aids (pp. 153–155).

To further complicate the communication picture, research has shown that, frequently, people do not seek information from public libraries just for themselves but are looking for information for others. Gross and Saxton (2001) refer to these types of questions as "imposed queries" whereby the question has been imposed on the patron by someone else, rather than self-generated. The authors found that about "25% of users responding to a survey of reference services were in the library on behalf of someone else" (p. 175), a figure which the authors state would have been higher if minors had been included in their study. Gross and Saxton note that library patrons asked questions for a wide variety of people, but some of the most common sources of imposed queries were employers and other business associates, instructors, family members and friends (p. 172). It stands to reason that the risk of various communication accidents happening with imposed queries is even greater than for self-generated queries. Furthermore, in the case of imposed queries, the reference librarian must draw out that the information sought is really for another person. Knowledge of this fact could make a great deal of difference to the success of the transaction (such as in the case of material needed for a child rather than another adult).

Finally, Pamela McKenzie (2003a) has raised the issue that very often, patrons must deal with more than one staff member while seeking information, and this may work against a successful outcome. Difficulties with multiple staff encounters include requiring the user to explain the query multiple times, chatting between the staff members while ignoring



the patron, passing the patron from one staff member to the next with no explanation of what has already been done on the query, and abandoning the patron while going off to consult another staff member. Mackenzie suggests that the "one user/one staff member" (p. 21) model of reference service is highly questionable and that better professional guidelines are needed to ensure that patrons' information needs are met when they interact with several staff members during the same transaction.

Based on these texts and studies, it can be concluded that

- patrons often have only a vague or ill-formed idea of the question/need they are attempting to formulate;
- patrons tend to ask questions about general subject areas or formats, believing that once in the correct area, they will be able to find specific information themselves;
- even those with a clear idea of their problem often have difficulty articulating their questions;
- for native English speakers, miscommunication often happens due to specific language features such as homonyms (i.e., China the country, vs. china dishes), syntactical errors, mispronunciation and memory lapses;
- non-native English speakers may have even more communication accidents and may not have the vocabulary to adequately express their questions;
- a relatively large number of library patrons may, in fact, be asking a question for another person;
- patrons feel more satisfied with the reference encounter if the librarian greets them, has an open, approachable manner, conducts a reference interview, and follows up on whether suitable information was found;
- patrons are aware when the librarian is trying to bring a premature or unsatisfactory closure to the reference transaction and will use a variety of strategies to keep the transaction moving ahead, and
- patrons interacting with multiple staff members about their questions are more vulnerable to feeling abandoned or shuffled around and need to be included in the discussions and decisions about the best sources to answer the query.

### C. Reader's Advisory Service

Given the primacy of reading for both pleasure and educative purposes, it is no surprise that public librarians see a need to become more proactive in helping library patrons find appropriate books to read, a practice which has come to be known as Reader's Advisory. Saricks and

Brown (1997) note that while Reader's Advisory services are not new and programs have been documented since the 1920s, "their role in libraries and the philosophy on which they are based have changed dramatically" (p. 1). The authors comment that "librarians today find themselves in the midst of a readers' advisory renaissance" (p. 6) as more and more librarians and libraries express interest in creating and/or expanding Readers' Advisory services. Although Reader's Advisory originated to help patrons find suitable fiction books, it has now expanded into the non-fiction arena as well (Burgin, 2004).

Kenneth Shearer (1996b) provides a synopsis of the overarching philosophy behind Readers' Advisory when he states:

Libraries not only locate needed information, they also recommend good reading. Books expand the imagination, knowledge, spirit, understanding, ideas and social world of their users. On occasion, the readers' advisor's guidance leads a patron to stories which compellingly speak to her and help her in her own life. (Preface)

Some of the necessary first steps taken in a Readers' Advisory service do not even involve talking with patrons. Ross *et al.* (2002) refer to these steps as "passive strategies" and Armstrong calls them "indirect library services" (2001). This behind-the-scene work includes "putting spine labels on books, shelving books in separate genre collections, ...creating bookmarks and annotated book lists and setting up attractive displays that are constantly replenished" (Ross *et al.* p. 162). All of this background work is important in creating an environment where readers understand that reading is valued, and where they will feel comfortable approaching librarians to talk about reading.

When it comes to interacting with library patrons, Readers' Advisory service uses some of the same best practices as the Reference Interview, but is quite a different transaction. Shearer (1996) points out that:

Unlike a reference transaction, the successful conclusion of a readers' advisory transaction is not the provision of a fact or missing data, nor does it attempt to fill a known gap in an otherwise complete informational or knowledge framework. The success of a reader's advisory transaction is reflected in a reader discovering a book (or cassette or software) which is enjoyable, entertaining, stimulating, mind stretching and eye opening; it is the realm of the subjective. On the other hand, the success of a reference transaction is reflected in the provision of a correct answer to a question or the filling of a gap in knowledge; it is the realm of the objective. (p. 3)

In assisting readers with book choices, the readers' advisor librarian takes a different approach than in searching for an answer to a question.

According to Saricks and Brown (1997, p. 8), readers' advisory librarians must be willing to read widely themselves, develop a knowledge of the preferences and interests of their patrons, and be familiar with popular genres of reading. In describing the readers' advisory interview, Ross *et al.* (2002, p. 167) note that the important component is getting the reader to talk about the books that s/he likes to read. Open-ended invitations to talk, such as "Tell me about a book that you have really enjoyed," are suggested as a good way to develop a rapport with the patron. The authors remind readers' advisory librarians that they must be careful not to fall into the trap of recommending books they themselves enjoyed or being judgmental about the types of books the patron enjoys (p. 173). The goal of good readers' advisory is to make the link between the reader and the types of books s/he wants to read.

Instituting a readers' advisory service does not automatically mean that the reading needs of the public will be met. First, numerous studies have shown that readers typically are reluctant to approach librarians to discuss reading. Baker (1996) summarized the "four most common reasons," including: "(1) patrons like to make up their own mind about the fiction they select, (2) staff look busy and/or unapproachable, (3) staff wouldn't know what readers would like, and (4) a question about fiction would be perceived as frivolous and a waste of staff time" (pp. 129-130). As a result, Baker cites other research demonstrating that readers were often frustrated in their attempts to find suitable reading material, complaining that the books they wanted were not on the shelves, there was not enough current material, or that they had run out of authors. Furthermore, Shearer (1996b, p. 6) notes that the participants in his study of readers' advisory practices had difficulty identifying whom to ask for help in the first place. In general, it takes a lot of commitment, work and a track record of successful interactions to get readers over their reluctance to approach staff about their reading. Saricks and Brown (1997) comment that "only when readers have been helped and are made comfortable coming to the desk do we find substantial numbers of readers asking us directly for assistance" (p. 67).

Second, as is true for the reference transaction, the readers' advisory interview can go wrong or be handled poorly by advisory staff. May (2001) noted that common difficulties included indicating to the patron that questions on reading are not welcomed, indicating that such questions are difficult and unpleasant, asking only perfunctory questions about the patron's domains of reading, not asking the reader about the appeal of works, and staff members remarking on their own reading preferences. Smith (2001) and Ross *et al.* (2002) suggest that a good readers' advisory interview must include an open and welcoming

atmosphere, enthusiasm for the reader's interests, nonjudgmental discussion of those interests, asking the reader what they liked and disliked about certain books, and determining what they might like to read on this occasion.

Do public libraries do enough to meet the needs of their readers? Mary Kay Chelton (1999), a well known expert in the area of services to assist and advise readers, is critical of what passes for readers' advisory in many cases. She notes that very few library science programs have courses on readers' advisory. This may be a contributing factor as to why public librarians generally have a rather poor understanding of readers and the gratifications they receive from reading. The arrangement of library spaces and collections often does little to allow readers to browse and help themselves. Chelton decries the currently popular description of the public library as an "information" agency, at the expense of the "knowledge of, or the will to act on the knowledge of, the possibility for social and self information contained in narrative stories" (p. 46). She states that if public libraries ignore their readers, increasing numbers of those readers will decamp to superstores or second-hand bookstores. So, although Readers' Advisory services may be having a renaissance, it seems that there is still much room for improvement in meeting the reading needs of the public.

#### D. Reference Service at a Distance: Telephone and Virtual Reference

Telephone reference service has been around for most of this century (Kern, 2004; see, for example, Gannett, 1936) and although it is being displaced in some cases by electronic reference, telephone enquiries from the public are still a major way that people seek information. Marcella and Baxter (1999) and Williamson (1998) found that the telephone was an important information-seeking mechanism for many of the participants in their studies and some people prefer to use the telephone rather than appearing in person or using a computer. Because the telephone is such a familiar technology, Quinn (1995) notes that telephone reference is often "taken for granted or overlooked by both patrons and professional staff alike" (p. 39) yet "when used proactively, the telephone can be a powerful reference tool" (p. 48). Unfortunately, Quinn's study found that telephone reference often is not done very well. Because of the lack of visual cues, the recommended practices for good telephone reference interviewing are different than for face-to-face transactions. Ross *et al.* (2002, pp. 128-131) note that the reference librarian needs to pay more attention to practices such as (1) acknowledging what was said by repeating parts of the question, (2) using minimal encouragers (such as

Go on, or Anything else?), and (3) explaining what s/he is doing away from the phone so that the caller is not left wondering if anything is happening. Quinn comments that doing telephone reference well is vitally important to the library because "it conveys an image of the library to patrons and to the larger community" (p. 39).

Telephone reference continues to be an important service for many public libraries and their patrons and is evolving in new ways. For instance, Tour (1998) reports on one Florida library's decision to expand and enhance their telephone reference as a completely separate service from the service for walk-in patrons. Tour notes that this was a win-win situation, as both phone-in patrons and walk-in patrons then had the undivided attention of reference librarians since phone calls no longer interrupted the librarians at the reference desk. The telephone service was also linked to a database where queries could be easily tracked and counted.

Although telephone reference will continue to exist for some time, the current area of growth is in electronic reference services. This encompasses a wide range of approaches, from email, to online digital reference collections, to chat and instant messaging, to interactive live reference, to Internet-based initiatives such as the Internet Public Library ([www.ipl.org/ref](http://www.ipl.org/ref)) and Ask a Librarian ([www.ask-a-librarian.org/uk](http://www.ask-a-librarian.org/uk)), which have been responding to the public's questions for a number of years. The potential advantages of virtual reference are summed up nicely by Ross *et al.* (2002):

With digital reference service, the library staff can transact the reference interview, refer the user to the online catalog and indexes, escort users through complex searches, provide bibliographic instruction and evaluation of sources, and deliver the required information in the form of Web sites or electronic journal articles or entries in electronic references tools.... At the end, the user has electronic text or graphics that can be printed out or stored electronically (p. 186).

Although on the face of it, providing reference service virtually might sound like a fairly straightforward task, in actuality, it is often more difficult than face-to-face or even telephone reference. Ross *et al.* (2002, pp. 188-190) point out some of the advantages of e-mail reference (convenience for patrons especially for the mobility-impaired, specific answers to questions rather than referrals, helpful for limited English speakers) as well as disadvantages (patrons may not provide enough context for the question, necessity of many back-and-forth messages, unrealistic patron expectations about immediacy of answers, takes too much time to explain to the user how the answer was found so information literacy instruction is short-changed).

In her review of the literature, Sullivan (2004) noted some of the characteristics of e-mail reference, including the fact that a greater proportion of the questions were more complex than in face-to-face transactions, that this form of reference takes much longer (taking an average of 40 minutes or more to answer an e-mail query in many cases and at least 10 minutes to type the answer) and that the volume of e-mail queries are increasing (with some public libraries reporting more than 200 queries per month; the Internet Public Library answers about 1000 queries per month). Echoing some of these findings, Murray and Tschernitz (2004) found that "many reference enquiries are either basic or complex, and the middle of the range is disappearing" (p. 85). Furthermore, librarians in the study observed that many users were actually reluctant to use electronic resources themselves and that these sources are used "far more by the library staff in answering enquiries than by users attempting to find information for themselves" (p. 85).

Public libraries also are currently expanding into live virtual reference, including chat (also known as real-time, online, or synchronous reference) and live interaction using Web contact center software. Numerous texts now exist regarding how to organize and operate virtual reference services; examples include Lankes (2004), Coffman (2003), Kimmel and Heise (2003), Ronan (2003a), and Meola and Stormont, 2002. Coffman (2003) provides a good summary of the history of these different forms of electronic reference and notes that while email reference was the earliest and easiest form of electronic reference, it has a serious disadvantage in that the librarian does all of the work and the patron is passive. To introduce more interactivity into the process, chat is one of the "quickest and easiest ways for a library to set up shop on the Web" (p. 17). However, chat also has its problems and limitations, mainly its inability to handle large volumes of requests and its limitations with respect to handling pictures and other larger files. The mainstream chat software usually does not allow the reference librarian to share Web pages, escort users through online databases or help them refine their search strategies (although newer generations of chat-like software are overcoming some of these problems). Accordingly, libraries began experimenting with Web contact center software (used by e-commerce sites) which does allow for those sorts of activities. Coffman expects that this latter approach to electronic reference will mean that even more libraries will develop interactive electronic reference services in the immediate future.

Although electronic reference may, in fact, take more staff time than for face-to-face transactions, if public libraries want to meet the needs of their patrons, it seems necessary for them to go down the electronic

reference road. Electronic information-seeking by the public, both adults and children, is now an everyday reality and large numbers of people have the expectation that they should be able to seek information solely in a virtual mode if they so choose. However, as Ronan (2003b) notes, "one of the biggest challenges in providing reference services in real-time is learning to communicate effectively with remote users and to translate the interpersonal skills used at the physical reference desk into the virtual environment" (p. 43). Nilsen and Ross (forthcoming 2006) discovered that in virtual encounters, the all-important reference interview is often lacking: only 20% of the electronic reference transactions they analyzed had any form of reference interview and participants in the study complained that the information they received virtually was not that helpful. Kenney (2002) notes that "libraries must offer this [electronic reference] service and they need to do it well; if they don't someone else most certainly will" (p. 47).

#### IV. The Information-Seeking of Particular Populations

##### A. Children and Young Adults

Information-seeking research in a public library context is perhaps best known for its focus on specific user populations, reflective, perhaps, of our tendency to define this institution by the people it is intended to serve. One of the largest bodies of literature in this area is that which examines the information needs and activities of children and young adults. These studies cross a range of topics that can be grouped into three general categories of informational activities in which young people engage: those related to school-work (from elementary through high school); those related to leisure (such as reading or playing computer games); and, those related to personal exploration (from health issues to career planning). In addition, these studies explore a wide range of developmental stages in children's lives—from early literacy (McKechnie, 2000) through advanced study—and include both topics that youngsters are required to explore (such as information for school projects, as examined by Fourie, 1995) to the information that they examine to feed their own curiosities. Shenton and Dixon's (2002) study of youngsters' attitudes regarding the public library, for example, reveals their need for school-related information as well as information related to personal interests. In addition, this study points to major criticisms of these institutions and the fact that children will look beyond the public library if other sources can satisfy their information needs.

Shenton and Dixon (2004) also conducted research to explore youngsters' generic information-seeking activities, which they note have been relatively understudied in comparison to investigations into specific information providers/sources for young people, and the processes young people use while searching. The authors found that when children and young adults sought information, they often used "untaught, expedient methods" (p. 183) and, like many adults, had great difficulty identifying appropriate search terms or concepts, and were frequently confused by terminology such as Contents, or Index. They seldom consulted more than a few sources and typically used the same search strategies that had worked for them in the past, regardless of the source. Also, the quantity of information was often equated with "goodness" of information, and very few children in the study thought about how best to evaluate or verify the accuracy of information. The single greatest source of frustration for young information-seekers was the lack of information pitched at an appropriate level for their needs. Finally, the study revealed that many young people attempted to simplify the information-seeking process by repeatedly visiting the same source (whether a magazine or a Web site) to see what new developments were being reported.

The Shenton and Dixon study (2004) also provides details on the varied contexts that surround children's information searches, for both school-related and personal situations. Sources used included books at home, people (such as parents and teachers), material from school resource centers and public libraries, CD-ROM products, Web sites and textbooks. This is quite consistent with much of the existing literature (Chelton and Cool, 2004; Vavrek, 2004; Walter, 2003; Winston and Paone, 2001) which demonstrates that the information resources children use are highly varied (such as people, texts, online chat rooms, etc.) and cross a range of multi-media formats, setting a very high bar for public library services and collections that are designed to meet young patrons' needs. In this context, the public library serves as only one centre (of many) that serves children and young adults' information needs, in addition to what the Internet, the school library, the home, and other sources of information can offer these individuals.

##### B. Adults

The literature that examines adults' information-seeking activities is equally varied and reflects the complex situations that give rise to different types of information needs. Although adults' information needs certainly shift to suit changes across the life span (say, from parenting information when a person is 20, to retirement planning when they are 50), the literature

points to four general categories of information needs, including those related to:

- work (including self-employment);
- leisure (from travel planning to recreational reading);
- personal issues (including health, finances, etc.), and
- education (including college or university, as well as self-improvement courses).

Within these four categories, there are also a number of special needs that arise for specific populations and/or at different points in an individual's life. Older adults, for example, may seek information related to medical, financial or leisure activities that are markedly different from the information required by younger adults (Honnold and Mesaros, 2004; Wicks, 2004). Ethnic minorities may require multilingual materials and reference services, as well as specialized collections related to immigration, housing, or learning English as a second language (Bala and Adkins, 2004; Pyati, 2003). In addition, some library patrons may have visual or physical impairments, learning disabilities, or other needs that require information to be presented in particular ways—such as large-print texts, or Web sites that can be verbalized through a screen reader (Hecker, 1996; Holt and Hole, 2003; McCain, 2002; Mendle, 1995; Williamson *et al.*, 2000).

Some researchers have explored issues of gender and sexual orientation on people's experiences as seekers of information (Higgins and Hawamdeh, 2001; Rothbauer and McKechnie, 1999). For instance, women may require particular information related to health, career planning, or other topics that affect women's lives (Dewdney *et al.*, 1996; Harris *et al.*, 2001; King, 1995). Socio-economic and cultural factors also may play a significant role in shaping a person's information-seeking activities. Armstrong *et al.* (2000), for example, point to the barriers that low-income people face while using the library, a theme that has been examined by a number of other researchers in this field (Chatman, 1991; Chatman and Pendleton, 1995; Spink and Cole, 2001b). Also, literacy levels vary widely among adult populations, so the public library must offer information and services to meet a range of reading, computer, and other literacy-skill levels (Antell, 2004; Baker *et al.*, 1997; Sarkodie-Mensah, 2000; Scates, 1999).

Overall, the literature that examines adults' and children's information-seeking activities points to the wide variation in these individuals' life-circumstances, and the various ways that the public library has responded to meet their multi-faceted information needs. Across all user groups, there are a number of general themes emerging from the

literature that point to the ways that public libraries can best serve patrons' needs, including:

- Children and young adults have information needs that cross their life-worlds, related to school, home, health, recreation, and planning for the future;
- Children and young adults respond to information presented in a range of formats, from puppets for young children, to interactive online games that include vibrant images and sounds for young adults;
- The public library serves as one centre (among many) where children and young adults turn for information, in addition to the Internet, school resources, bookshelves at home, and other sources;
- All patrons need information to be presented in a range of formats, both online and in-house;
- Defining patrons purely by categories based on age or other characteristics (such as "young adult" or "visually impaired") is counterproductive; although it is important to recognize patrons' special needs, and the ways that particular information-seeking activities may shift over the life-span, it is important to treat all patrons as individuals, with particular (and highly personal) information needs, and
- Patrons' information needs are multi-faceted and changeable, so while they may come to the public library for help with work or school, they may leave with long-awaited novel in hand and thus the library needs to facilitate all types of information-seeking activities.

## V. Information-Seeking, Instruction, Training, and Searching

### A. Information Literacy Instruction and Technology Training

In contemporary public libraries, patrons who are seeking information, whether they are placing a hold on a specific fiction title or searching for books on a topic, inevitably will encounter various information retrieval technologies. In smaller rural branch libraries, the technology encountered may be a lone computer. In large urban libraries, the technologies encountered could encompass computers, numerous software packages, printers, microfiche readers, video viewers, audio workstations, electronic book (or e-book) readers and specialized workstations for the physically disabled, to name a few. The finding of information is highly related to patrons' abilities to successfully use and navigate various information technologies, while the understanding, evaluating and using of information depends on patrons' general information literacy

knowledge and critical thinking abilities. Thus because the understanding of information and the technology to find and use that information are so intertwined, the lines between what is considered to be information literacy instruction and technology training are often very blurry. As a result, we have combined the two areas in this discussion.

How can public libraries facilitate the ability of their patrons to successfully use the technologies available to them to search for and use needed information? Some technologies are more prominent than others, so helping patrons to become technologically self-sufficient and information literate largely translates into helping them learn to use computers and computerized information retrieval. Enabling patrons to successfully use computers, however, is not an easy task. The first step is to provide some sort of technology training. It may be an obvious fact, but it is worth repeating that not all patrons have the same views of technology. Some are eager to try new technologies and some are not. The key is to help patrons to be as self-sufficient in their information-seeking as they want to be.

Technology training has to do largely with the mastery of technical skills, such as using a mouse or navigating an interface, and certain conceptual skills, such as understanding the differences between word processing and e-mail. The main way that public libraries enable patrons to become more comfortable with computer technologies is to provide in-house training. It is currently quite common for larger public library systems to have a computer training facility where regular courses and workshops are offered. Sometimes technology training is a stand-alone type of training while at other times, it is a component of the library's information literacy instruction. For instance, a workshop on learning to use the Internet could include some basic technical skills as well as searching and retrieval skills. Another consideration is that technology training often needs to be adapted to suit the needs of particular groups (Van Fleet and Antell, 2002).

One of the first hurdles in technology training is that when it comes to computers, some patrons are actually quite fearful, a phenomenon that has been termed variously computer anxiety, technophobia, or technostress. Harrison (2000, p. 33) points out that while it was once thought that women and older people were more likely to be computer phobic, recent research has debunked those ideas. She notes that "previous experience with computers is the biggest predictor of computer anxiety: people who have been longer exposed to computers, and were introduced to them in the proper way, will feel significantly more comfortable using those computers" (p. 34). A number of other factors also may contribute to computer anxiety. For instance, Harrison cites a study by

Anderson (1996), which found that even playfulness has a role in reducing computer anxiety since those who were able to play around with computers felt less anxious.

Even with training, not everyone is readily conversant with all technologies and so will require assistance at various points. Unfortunately, for librarians, some of this assistance has relatively little to do with information-seeking and more to do with technological inexperience and/or glitches. Reference librarians have long complained about the inordinate amount of time required to deal with technical problems with, for instance, public access printers. An assessment of the library program of the Gates Foundation found that the workload of public librarians had increased with the installation of computers and that a "substantial number raised concerns about the costs of printing and the difficulties of avoiding unwanted printing by unsophisticated users" (Gordon *et al.*, 2001, p. 136). Librarians also questioned whether it should be their responsibility to teach about word processing and e-mail. However, public librarians cannot completely ignore the fact that a number of patrons have difficulties with technology because, in the end, these difficulties do limit information-seeking by discouraging the independent self-help that many patrons desire. Librarians have a vested interest in encouraging patrons to become more self-sufficient with respect to information technologies. It would not be possible nor desirable for librarians to interact with every patron, particularly for information-seeking activities which are relatively straightforward, such as looking up the call number for a specific book. To keep to manageable workloads, reference librarians depend upon the fact that numbers of patrons can search for and find a certain amount of information on their own.

Mastery of technologies, however, is only part of the equation. The other part of the equation, and many would assert the most challenging part, is information literacy instruction: helping people to understand and use the universe of information resources at their disposal. Like many topics in this review, the literature on information literacy, or bibliographic instruction as it was formerly called, is so large that it is impossible to cover it in any depth here. Much of that literature has focused on academic libraries and surprisingly little has been written about information literacy in public libraries. While the major information literacy guidelines in LIS were developed with higher education in mind (Association of College and Research Libraries, 2000), they also could just as easily apply to members of the public. The guidelines stress that information literate persons should be able to determine what information they need, find that information relatively efficiently, evaluate it and then use it to accomplish a purpose. Information literacy is also linked to

concerns about the growth of the digital divide (Hargittai, 2002a; Julien and Boon, 2003) since those who do not have information literacy skills are less able to find and retrieve digital information.

As to the role of public librarians in information literacy, Harris (1992) found that public librarians were far more ambivalent about information literacy than academic librarians. At the time, there was very little agreement among public librarians surveyed as to whether public librarians ought to have an instructional role at all or whether they should concentrate on information provision (Harris, 1989). While 76% of librarians in Harris' study thought that library patrons should be taught how to use and access information, 87% thought that the best way to do so was as a normal part of the reference transaction, on a one-on-one basis (also noted by Bruce and Lampson, 2002; Wilson, 2003). Information literacy instructional programs, therefore, were not common in public libraries. However, that time seems to be passing. More public librarians are now actively creating and/or expanding their information literacy instructional programs, though this is far from the norm as yet (Julien and Breu, 2005).

Julien and Breu's research (2005) into the practices of Canadian public libraries with respect to information literacy is one of the few recent studies on the topic. The authors found that 85% of the librarians surveyed believed that public librarians ought to be involved in information literacy instruction and that 97% of them believed that adult Canadians needed such instruction. As to why the public required instructional programs, the main reasons cited were that: (1) they simply did not have adequate skills, and (2) that they had never been taught this before, but other important reasons included (3) facilitating adaptation to technological change, and (4) enabling the public to deal with information in different formats. It was also recognized that children needed information literacy instruction, primarily to: (1) prepare them for the future, (2) support their educational pursuits, (3) prepare them for adulthood, and (4) facilitate better use of information. Most often librarians carried out information literacy instruction (at 22% of libraries) but library technicians and clerks were also heavily involved.

What kinds of instructional programs are in place in public libraries? Julien and Breu's results (2005) show that about 18% of public libraries are offering courses or workshops on Internet searching, 16% offer general workshops on searching, and 9% offer basic computer instruction. About 10% of libraries have instructional programs designed for children and 6% for seniors. As to the specific skills being taught, the authors' findings confirm the intertwining of information literacy

and technology training. The public libraries surveyed report that they teach

- searching the Internet (27% of responding libraries);
- searching the catalog (16%);
- using e-mail (12%);
- searching databases (11%);
- using computers (10%);
- evaluating sources (9%), and
- word processing (7%).

Despite the concerns of librarians about how information literacy programs will be funded, public librarians are becoming more and more involved in information literacy instruction and indications are that this will continue into the future. As Julien and Breu (2005) and D'Elia *et al.* (2002) point out, since various governments are making a commitment to the digital connectedness of their citizens, it is important that public libraries play a strong role in helping citizens to become information literate or else they risk being left out of policy discussions and developments pertaining to the so-called information highway.

## B. Online Catalogs

One of the most common library computer technologies that patrons interact with is the online public access catalog (known as the OPAC or WebPAC). Yet, as is well documented in the information retrieval literature, searching the average library catalog, even with the greater flexibility of Web interfaces, continues to be a challenge (Borgman, 1996; Novomy, 2004; Thomas, 2001). There are a wide variety of well-documented reasons as to why OPAC searching is problematic for so many people, including

- searching errors because of spelling and typographical mistakes;
- scrolling too quickly and missing relevant information;
- problems with understanding and using the basic standardized elements of the information records in the catalog, such as subject headings;
- difficulties with Boolean logic and keyword searching;
- inability to refine their searches;
- the way in which the information about the library's resources is displayed, or difficulty interpreting what those displays actually mean;
- the usability of the interface, and
- the functionality and constraints of the underlying software.

Although one might imagine that many of the findings on OPAC searching noted above would be applicable across a wide variety of people, very few studies have actually been done in public libraries. Debra Slone (2000) comments that most studies have been conducted in academic libraries, very different environments from public libraries which must "advance the needs of a more indeterminate, inclusive and heterogeneous population. Use of studies in academic settings, therefore, cannot yield data necessary to fully understand public library users and the wide range of needs that characterize them" (p. 758).

Accordingly, Slone (2000) undertook an investigation into what behaviors and strategies public library patrons used in searching the library's catalog, and whether or not they felt confident about using the OPAC to find the information they needed. Slone found that patrons were divided into three distinct groups with different types of queries at the catalog, including

1. those who knew what they were searching for (known-item searchers);
2. those who had no idea what they were searching for and relied solely on the catalog to help them (unknown-item searchers), and
3. those who had no idea what they were searching for but used the catalog minimally to find the appropriate section or area of the library in which to browse (area searchers).

Of the three search types, patrons who were doing unknown-item searches had the most difficult time and were unsuccessful at finding something relevant in over 50% of their searches. Some of the difficulties had to do with doing subject searching: most patrons seemed unable to either narrow or broaden their searches effectively, or to think of alternate terms if their first terms yielded no results. In addition, if the first screen of results did not look promising, patrons often did not look at subsequent screens even if there would have been helpful citations. Frustration and lack of confidence were common feelings as searches progressed. Slone notes that "unknown-item searchers became frustrated after the first few unsuccessful search terms and gave up easily" (p. 764). The few who were successful at unknown-item searches were the patrons who started with broad, general terms, and then used the subject headings of retrieved items to help them narrow their search to something more specific.

Area searchers fared much better: 88% of patrons using this approach found something they were happy with at the shelves. Since the goal was to find a relevant area of the shelves and go to that area to make further evaluations about what materials to borrow, area searchers kept

their searches to a minimum. Area searchers were fast, with no search taking "longer than 1 minute and all but one were efficient and successful" (p. 763). In addition, area searchers often left the computer to find the appropriate area of the shelves, examined and found relevant materials, and then returned to the computer to do known-item searches to amass further citations. Slone comments that "most area searches were performed with [a] level of efficiency, swiftness and confidence" (p. 762). In fact, 75% of area searchers expressed confidence that their searches would lead them to relevant materials.

Known-item searches were also very successful, again with an 88% success rate (p. 761). These searchers were the least likely to make mistakes, since they were often searching from handwritten lists of authors and titles. When mistakes occurred that affected the search, they were usually typographical or spelling errors. Confidence was fairly high: 63% of searchers felt confident that they would find the needed material (p. 764).

Different types of library patrons also may have particular sorts of problems with OPAC searching. Sit (1998) explored the OPAC use of older public library patrons, over the age of 50. He found that generally, these patrons were able to successfully perform simple searches such as on authors and titles but had difficulty with more advanced searches, especially involving Boolean logic. About 40% of participants had difficulty noticing and/or comprehending parts of the information displayed in the records. Patrons also had difficulty switching databases (i.e., from author to title, or author to subject). In addition, about 30% of participant errors were made due to specifying the wrong search field, omitting a search field or entering commands at the wrong time.

Because of the difficulties associated with searching online catalogs, Joe (1999) comments that the OPAC actually has become a barrier to information-seeking in many cases. To see how this could be remedied, Joe devised a study where public library patrons who were using the OPAC were approached by a librarian and offered assistance, even if they had not asked for it. The results were very revealing: of the 189 patrons approached, 89 (44%) readily accepted the assistance. Joe comments (p. 154) that:

Each of the 89 acceptances...was a wonderful opportunity to work with the patron. These types of dialogues do not usually occur at the reference desk [where the patron] at best might be allowed to view the computer screen.... During this study, the librarian was standing or seated beside the patron at the terminal. There was no reference desk or barrier between the two parties [which was very] conducive to the idea of working with the patron.



From these studies, it is obvious that the OPAC has the potential to have a large impact on how successful patrons are in their information-seeking activities. Overall, what does the research suggest? Quite simply, it is highly likely that a large number of public library patrons on any given day will have difficulties in their OPAC searches and will give up, will miss much relevant material or will feel very frustrated by their searching. Approaches that appear to work best are searching for specific known items, using the subject headings from broad searches to narrow down topics, or using a combination of OPAC searching with shelf browsing. Slone (2000, p. 766) suggests that current OPAC interfaces need to do a better job of incorporating hints or help screens for the different types of searching. Sit (1998) remarks that better OPAC interface design and more appropriate labeling is sorely needed while Joe (1999) urges public library administrators to set aside money to enable public services staff to assist more patrons directly with their OPAC searching.

### C. Other Databases

Beyond the OPAC, public libraries have a variety of other types of bibliographic and full-text databases. Some of these are at stand-alone workstations, while others are networked and incorporated into the menu of the library's Web interface. While a great deal of research has examined what searchers, in general, do when using databases, the situation is similar to that of OPAC-use research in that very few studies of database use have been carried out in public libraries. Thus, we have to extract what might be common database-use issues for public library patrons from studies that have looked at searchers in other settings.

Quite a number of database searching studies have been conducted in universities, particularly with students. Although students do not have exactly the same characteristics as public library patrons, the one area of strong similarity is that when it comes to using databases, they are often novices, just like many public library patrons. McCarthy *et al.* (1997) provide a good bibliography of early studies of student use of CD-ROM bibliographic databases. In general, these studies found that students could not choose a database which would adequately cover their topic, could not select citations appropriate to their topics, had difficulty reading the citations from their searches, could not tell the difference between scholarly works and popular articles, were discouraged when encountering foreign language citations, were impatient and unwilling to sort through citations to find the most relevant, did not understand

the relationship between the citations retrieved and the library's actual holdings, and many other similar difficulties.

Although the problems cited above undoubtedly still exist, more recent work on database searching has concentrated on the characteristics of database interfaces, and the searching of full-text databases, digital libraries and Web resources. An example of direction that the research is now taking is the volume by Borner and Chen (2002). Chapters in this volume address issues such as how to make interfaces appear more like games, how visual interfaces could be used to organize and store documents retrieved, how to improve searching within documents, how to provide better browsing for photographs and various other topics. Another recent example is work by Park (2000) who looked at whether it was easier for end-user database searchers to search via an integrated interface (that searches multiple databases all at once) or a common interface (that uses the same interface but allows the users to search each database separately). Participants in Park's study preferred the common interface because it gave the users greater control over the databases searched and was easier to keep track of results. Park comments that since integrated databases are currently recommended, libraries may have to rethink the kinds of interfaces they are providing for multiple database searching.

Overall, the challenges related to searching public-access databases and digital resources are very similar to those for searching the OPAC and could include some or all of the following:

- general lack of awareness of existence or purpose of databases;
- choosing a database that does not match the person's information need;
- not understanding the underlying structure of the database;
- difficulties with search term formulation and lack of awareness of the thesaurus;
- difficulties with searching techniques, such as using keywords and Boolean;
- difficulty navigating the interface or using multiple interfaces;
- inability to understand and evaluate the citations retrieved, and
- difficulty locating items once citations have been retrieved.

Whatever the conclusions of various studies, the inescapable fact is that as the number of CD-ROM, online and full-text databases in public libraries grow, many of them with different search interfaces, it becomes increasingly hard for patrons and librarians alike to know all the peculiarities of the different products (MacKellar and Elliott, 1999). Unlike in a university environment, where students in a discipline (and the librarians responsible for providing regular assistance with searching) come to

know the main database in that discipline relatively well, public library patrons may only use databases occasionally and thus may have forgotten the search conventions learned previously. McCarthy, *et al.* (1997) comment that the introduction of electronic databases in academic libraries has "created an increase in demand for point-of-use assistance" yet "vendors have promoted their products for end-users, claiming little or no assistance is needed from professional staff" (p. 130).

Given the experience of academic libraries, it is highly likely that an increased demand for librarian assistance with databases and other online resources will also be the case in public libraries. Yet, as Williamson and Bannister (2003) found, the public librarians in their research believed that they did not have enough knowledge of the four databases included in the study to feel comfortable either searching those databases for patrons, or instructing patrons on how to use the databases. Training for successful intermediation, then, becomes a very important consideration when public libraries are considering whether to expand their CD-ROM and online database offerings.

#### D. The Internet

Internet access in public libraries has spread very rapidly during the past decade and its potential impact on the library has caused concern among public librarians. Would the Internet diminish the number of people using the library? Early results suggest perhaps not. A survey of public library and Internet users reported by D'Elia *et al.* (2002) found that 75% of the Internet users use the public library and 60% of the public library users also use the Internet (p. 806). Furthermore, Internet users did not appear to use the public library any less frequently than non-Internet users. However, when it came to finding specific types of information, the survey responses did indicate some differences. Twice as many Internet users were likely to use the Web rather than the library to search for information on consumer products, business, community services, government, and jobs or careers. Also, twice as many Internet users were using the Web to do job-related research, read newspapers and magazine, and to do children's schoolwork. The authors conclude that "the library is already beginning to experience competition for the information franchise" (p. 818).

Despite the potential for competition for the public's preferred sources of information, the ongoing presence of the Internet in public libraries is a certainty. Accordingly, it is very worthwhile for librarians to have a better understanding of what people do when they search the Web in the library. Because Web-searching research is still in its infancy, it is

only recently that we have started to amass a body of literature on what Internet users do when they search. Spink *et al.* (2001) comment that there is "relatively little understanding about how people actually search the Web. We understand more about how people use non-Web-based IR [information retrieval] systems than how they use the Web" (p. 226).

Some of the largest studies carried out to date are those done by Spink *et al.* (2001) who conducted three studies on the Alta Vista and Excite search engines, with several million queries analyzed. The researchers found that, on an average, searchers posed 2-3 questions in a single search session. About half of searchers submitted a single query, while almost a third entered three or more queries. Those who entered multiple queries often modified their initial query by subsequently changing some of the terms, but overall, there was no change in the number of terms in the query. In general, Web searchers were "more likely to add than delete a term" (p. 228) but even so, not many terms were changed in each subsequent search statement. The typical Web searcher viewed eight pages, but interestingly, about 28% of searchers examined only a single page. Finally, less than 5% of searches used Boolean operators and when those operators were used, "and" was the most common one. In light of this finding, the authors question the usefulness of advanced features on current search engines.

Slone (2002) conducted a study to explore the ways in which public library patrons specifically search the Internet. Two objectives of the study were to examine patrons' Internet search patterns and determine whether their search goals affected search patterns. Slone found that, generally, there were four major ways that public library users searched the Internet, including, in order of frequency, (1) linking to other sites (90% of participants), (2) searching by URLs (45%), (3) using search engines (42%), and (4) searching within a specific domain (19%). Novice users were more likely to use fewer search approaches and features than more experienced users. Slone discovered that the way in which patrons searched the Internet was related to their goals in searching: those searching for jobs did the broadest searches and accessed a large number of sites, whereas those searching for educational purposes searched fewer sites but used more Web tools and search approaches. Those searching for recreational purposes searched primarily by serendipity and abandoned searching strategies that were too "cognitively cumbersome" (p. 1166).

What can be said at this point about the ways in which people search the Internet? Although comparisons between studies are difficult because of different data definitions and analyses, the research cited in a number of reviews (Hargittai, 2002b; Spink, 2003; Yang, 2005) indicate that, in general, many Internet searchers:

- do a lot of browsing;
- have similar patterns of surfing;
- miss relevant hits and/or retrieve numerous irrelevant hits;
- frequently do not scroll to the bottom of long screens;
- make frequent use of the "back" button;
- view only a small number of pages per query;
- have trouble moving from screen to screen;
- have a tendency to get lost while searching;
- cannot enter valid search terms;
- use short queries and very few queries per search;
- largely do not take advantage of advanced features, and
- do not use Boolean operators very much or very well.

What kinds of Internet sites does the public want to access? Spink *et al.* (2001) considered this question in their study, and found that the most frequently accessed categories of sites were, in order of frequency:

- entertainment, recreation (17% of sites);
- sex, pornography, sexual preferences (17%);
- commerce, travel, employment, economy (13%);
- computers, the Internet (13%);
- health, science (9%);
- people, places, things (7%);
- society, culture, ethnicity, religion (6%);
- education, humanities (6%);
- performing and fine arts (5%), and
- government (3%).

In a subsequent update to that study, Wolfram *et al.* (2001) noted that the popularity of certain topics had shifted in the two years between the studies. The top five types of sites in the subsequent analysis were (1) commerce, travel, employment and the economy (24%), (2) people, places and things (20%), (3) computers and the Internet (11%), (4) sex, pornography and sexual preferences (8%), and (5) health and the sciences (8%).

In another large-scale study of Internet use, Ann Curry (2002) examined the Web transaction logs of the public access Internet terminals in five Canadian public libraries. Over 19,000 URLs were classified by subject and genre. Curry found that the most popular subjects accessed were, in descending order, science and technology, recreation, arts and popular culture, lifestyles, consumer products, business and economics, media, humanities and sex. Although many of these topics are similar to those noted by Spink *et al.* there is quite a difference as to the relative popularity of various topics. For instance, by far the most

popular topic in the Canadian study was science and technology, which was halfway down the list in the Spink study. Sex sites were accessed far less often in Curry's research. These differences can be explained in part because Curry's study used data from public terminals, so users would be far less likely to be accessing sex sites (and in fact, may have been blocked from doing so). In contrast, in the Spink *et al.* research, a large proportion of searchers would have been using private computers and thus would have been freer to make decisions about what to view. Furthermore, the two studies had different methods of categorizing the sites, which is always a problem when trying to compare research.

Regarding types of sites (or genres) accessed in public libraries, Curry found usage patterns as follows:

- e-mail (39% of usage);
- corporate sites (25%);
- access points such as search engines and directories (10%);
- Web communities (8%);
- e-commerce (5%);
- chat and message boards (3%);
- personal Web pages (2.5%);
- personals/classified (2%), and
- educational institutions (2%).

It is clear from these studies that the public is using a large array of Web resources on a wide variety of topics but it is also evident from information retrieval studies that most people do not have the patience or expertise to carry out complex searches that would give them the optimum results. Yang (2005) has noted that Internet users "do not want to engage in an involved retrieval process. Instead, they expect immediate answers while expending minimum effort" (p. 39). Thus, for many information-seekers, the information taken from the Web could be characterized as merely convenient, or even "quick and dirty." Since the Internet is now pervasive and publicly accessible in the majority of public libraries, a key question to ask is: What should public libraries be doing to use the resources of the Internet to provide service to patrons?

The answers to that question are emerging. Prabha and Irwin (2003) conducted a survey of a random sample of American and Canadian public libraries to see what Web-based services they were offering. The authors found that libraries were providing access to large reference sites like the Internet Public Library (95%), access to Web collections (72%), e-mail addresses and contact information for reference librarians (69%), links to external Web sites (67%), access to the library's catalog through the Web (65%), access to databases (63%), links to search engines (58%),

interactive reference services (21%), and e-mail reference (16%). Jones (2002) discovered that the majority of public librarians in her study had very positive views of providing library services via the Web, even more so than academic librarians. Furthermore, 95% of the librarians in the study had had training in the use of the Internet.

One area where the Internet can have a huge impact is on the delivery of reference services. A number of studies have shown that that reference librarians perceive the Internet to be useful in answering queries (Stover, 2000) and that a large proportion of reference questions can be quickly and correctly answered using the Internet (Jones and McClure, 1999; Zumalt and Pasicznyuk, 1998). However, Ross and Nilsen (2000) found that reference librarians in public libraries were making use of the Internet for only about 6% of the queries studied, despite the fact that the Internet would have been a useful source in at least half of the questions. The authors remark that "it seems safe to say that the full potential of the Internet as a reference source is not yet being realized" (p. 152). Nonetheless, with cooperative Internet reference sites such as the Internet Public Library and new initiatives such as live interactive reference, the profile and popularity of Internet reference continues to grow.

Wilson (2004) provides a very good summary of the wide variety of ways that the Internet can be used to enhance and improve the public library's services. Some of the areas include: (1) more effective promotion of the library, (2) digital collections, (3) digital referral services, (4) customizing the library's catalog, (5) providing easier access to research databases and electronic journals, (6) increasing the visibility of Readers' Advisory services by providing book reviews, authors online, and book discussions, and (7) developing content for specific groups of patrons, such as young adults, seniors, ethno-linguistic communities and the disabled. Another mechanism is to improve the library's visibility through its Web presence. Hildrebrand (2003) notes that until now, library Web sites largely have been used to provide relatively static information about library services and branches. However, he suggests that libraries could take this further by taking advantage of "emerging Web technologies to develop Web sites which become a one stop shop for delivering and accessing a wide range of library services" (p. 140). Along these lines, Jones and Pfeil (2004) examine the ways in which Web pages can be used to target a specific clientele such as young adults.

Finally, what about providing searching assistance to patrons who are using the Internet within the library? Given that many people are not expert Internet searchers, what could be done to assist them in their Web-based information-seeking? Is the presence and use of the Internet

in public libraries actually a way to take advantage of the "teachable moment" and expand information literacy? Wilson (2004), Wilson (2003), Block (2003) and Gordon (2001) all suggest a number of ideas for utilizing the Internet to make patrons more confident and more successful in their information-seeking and more aware of the resources of both the library and the Net, including:

- specific Internet usage instructional programming;
- online Web tutorials;
- virtual library tours;
- pages with search tips;
- Web question and answer [Q & A] pages;
- Web pages for specific audiences, such as young adults or seniors;
- Web-logs for specific purposes, such as Readers' Advisory;
- online guides to the library's collections;
- linking to good Web sites and repositories of reliable factual information;
- savvy searchers pages, with the latest on new browsers or interesting features, and
- posting patrons' suggestions about the library's Web site.

Given that: (a) many public library patrons are also heavy users of the Internet, (b) the Internet has already replaced the public library for at least some information-seeking, and (c) the public library may be the only place that some patrons have access to the Internet (D'Elia *et al.*, 2002), it seems imperative for public libraries to pay attention to their on-site Internet users and to assist them in using the Internet to the fullest possible. With the current constraints on public library resources and budgets and the growing demand for digital services, this task is, of course, easier said than done.

## VI. Information-Seeking and The Physical Environment

Although largely overlooked in the information-seeking research literature, the physical environment has a large influence both on how willing the public is to use the library for information-seeking and how their information-seeking is carried out. While there are many excellent current resources in terms of building and designing libraries and library spaces (McCabe and Kennedy, 2003; Sannwald, 2001; Webb, 2000; Williamsburg Regional Library, 2001), many authors either make only passing reference to the role of physical space in information-seeking or make the assumption that everything about libraries is somehow related

result, there is no convenient nor comprehensive single work which gathers together all of the considerations on this topic. Accordingly, this portion of the review draws upon both the existing literature and the experiences of the two authors in conducting original research into the use of public libraries by patrons, all the while noting that it is not possible in this short section to do full justice to all the considerations about information-seeking and the physical environment.

The physical environment of the public library can be thought of as two distinct but very highly interrelated conceptual zones. The first zone is that of physical "space," which involves the location, architecture, and interior design of the building itself. As far as the public is concerned, the zone of physical space is somewhat neutral, or perhaps ambiguous would be a more accurate term. True, it is invested with certain types of meanings, such as the vision of the architect, the interplay of municipal politics in determining its creation and purpose, and the perspectives of librarians involved in planning for the public's optimal use of the facility. However, for most part, on the day that a new library opens its doors, it is untested space. "Space" does not evolve into something more meaningful until the inhabitants of the premises begin to put their stamp upon it. Accordingly, the second zone is "place," by which we mean the sense of place that the library comes to represent in the hearts and minds of its clientele, staff and larger community. As children carve out their favorite areas of the children's library, adult patrons find a cozy corner to read and reflect and staff re-arrange the furniture to facilitate the best interactions with patrons, the physical space begins to take on a character reflective of its community of inhabitants and over time, becomes a true place. Since both space and place can have an impact upon information-seeking, for the purposes of this discussion, we shall deal with each in turn, although we must emphasize that separating the two is somewhat arbitrary and difficult.

First, physical space. Postmodern scholars would undoubtedly argue that no space is neutral and that hidden agendas or ideologies permeate every type of public structure that is built. Those scholars are right in the sense that human-made physical spaces are bounded by the societal and individual thinking that goes into their creation. Although community involvement in library space planning is recommended (see, for instance, chapter 5 in McCabe and Kennedy 2003), the majority of library patrons usually do not have a direct voice into the micro-details of library construction (such as where best to place a dividing wall or a reference desk), some of the important decisions that later may affect how they view and use the building are made for them by architects, planners and

librarians. It is extremely important for public librarians to be intimately involved in the process of library building and design because it is librarians, with their decades of working with the public, who have the best insights into public use of the library. However, this is a challenge because as Curry and Henriquez (1998) note, librarians and architects do not speak the same language nor have the same vision of public libraries. In their study, public librarians thought in terms of "how successfully the new building would serve the clientele, [and] how the building would cope with increased demands for services" while the architects saw the building in "much more static, symbolic terms. They described what the building 'is' while the librarians described what the building 'does'" (p. 89).

One of the most important early space-related decisions concerns the library and its location. Where a public library is located may have a large impact on who can use it and ultimately, therefore, on the information-seeking that takes place within it. Is it accessible? Is it handy to public transportation? Is there ample room for parking? Is it safe? Is it easy to find? Is the location aesthetically pleasing? In her review of the literature, Koontz (1997) provides ample evidence that "siting" and accessibility are two of the major factors affecting library use. She notes that "the location of a library facility is, initially, the most important decision that library planners and managers make. Mistakes in site selection result in less than maximum potential, effectiveness and equity of service" (p. 6). Koontz points out that it is very difficult to recover from a serious siting mistake, which can affect the library's potential for decades.

Once a good location has been determined, and an overall architectural vision of the public library has been approved, there are a plethora of important architectural and design decisions to be made that may affect the public's ability to find and use the resources they need. A handy overall checklist is provided by Sannwald (2001). Some of the many decisions which could affect information-seeking include:

- large well-lit exterior signage visible to passing cars;
- convenient book-drops, accessible for both foot and vehicular traffic;
- circulation desk clearly visible and identifiable;
- reference desks of appropriate height for adults, children and the disabled;
- reference desks constructed to allow a sense of privacy;
- arrangement of book stacks in parallel ranges for easily location of materials;
- a variety of types of seating and work spaces;

- seating to accommodate those with mobility problems (such as seniors);
- adequate space to accommodate information technologies and their use;
- appropriate lighting for computer terminals and reading areas;
- acoustically separate study rooms for groups;
- clearly marked floor designations;
- children's area arranged in such a way that adults also can be accommodated, and
- barrier-free access to all areas of the library.

Once the physical space has been designed and built, and all the furnishings, materials and equipment are in place, the library is ready for public use. At this point, the public will determine whether the vision of the architect and the knowledge of the librarians and designers have come together to create a workable space. This leads us into a discussion of the second conceptual zone, that being the "place" of the library. Will the building facilitate the needs and uses envisioned? Is the building flexible enough to accommodate unanticipated needs and uses? Will the building be able to evolve over time in response to its multiple communities of use? Will the public feel comfortable and happy when using the premises? Will it become a real "place" in the community, the kind of place that fits into the everyday lives of its users?

Many public libraries begin to find the answers to those questions immediately upon opening (Lackney and Zajfen, 2005; Williamsburg Regional Library, 2001, pp. 105-116). Lackney and Zajfen, (2005) cite the lessons learned in three different public library projects. In particular, some of the issues that had an impact upon information-seeking were (1) constricted circulation and reference desk areas, (2) lack of privacy when staff had to converse with patrons, (3) general lack of interior signage, (4) problems with noise, lighting and glare, (5) need for more seating options and tables large enough to lay out work, (6) inaccessible shelving, (7) not enough quiet places for study, (8) not enough computer terminals and long wait lines to use the computers, (9) poor sight lines causing concerns with safety, and (10) unstable heating and cooling, making some areas of the library uncomfortable. Some of these issues can be remedied relatively easily (such as increasing good signage) while others are more problematic (like not having enough space to meet the demand for computer use).

The expectations of the public about public spaces are changing. Lushington (2001) notes that, in the past, library patrons had to put up with buildings created from visions of the public library that were never intended to focus on the public's needs. The author points out that

public libraries were often envisioned stereotypically as "the city monument," "the great reading room," or "the big book stacks." All of these models of the library created problems for library users, who had to put up with various inconveniences and inaccessibility of the physical spaces of the building. Lushington remarks that:

For decades, library users responded to these library stereotypes with a touching and hopeful loyalty. They appreciated the monumental appearance of the city library. They sat in the uncomfortable chairs in the reading rooms, baking in summer heat and shivering in winter cold. They ferreted out the books in the book stacks in spite of confusing arrangements and circuitous stack mazes. They waited patiently to check out books. However, in the twenty first century, there are signs that users are becoming impatient with the cumbersome and confusing arrangement of some libraries. When users have money and can get their books delivered from Amazon in four days, ... it's not surprising that they forego the physical obstacles presented by many libraries (p. 21).

What has the public come to expect today with respect to the spaces they encounter in daily life? Since many of the so-called public spaces they encounter are shopping malls and other commercial spaces, these undoubtedly have an influence on shaping what the public likes and does not like. There has been a great deal of discussion of the impact of large-scale bookstores on the physical spaces of libraries. Elements such as having comfortable reading chairs and couches, ample room to browse, display racks that are not too high, and food and coffee available within the store are advantages that are not lost on the public and have affected the public's perception of what ought to be in public libraries as well. In an interesting discussion of how retailing concepts can apply to libraries, Stanley (2003) states that "it is not the space allocated to books that is critical; it is the space allocated to people. Customer comfort will determine how many books are borrowed and how long customers will stay in your library" (p. 79). He recommends that only 40% of the library's floor space should be allocated to book stacks and tables and the remaining 60% to browsing.

Michaels (2003, p. 22) recounts the example of one public library that took the retail trends of longer service hours, food and more self-service to heart in the design of a new branch library, ending up with a smaller space but with more personal service. The author remarks that "both circulation and library use are up and the citizens and staff are happy." In another example, the public library was designed entirely around the concept of how it would be experienced by its users, so increased attention was paid to personalized orientation and assistance, as well as setting themes for different areas of the library (Williams, 2002). In our research (Leckie and

Hopkins, 2002), it was clear that the public expects (and wants) to see natural light (via skylights and/or large windows), airiness, spaciousness, comfortable, modern furnishings and clean facilities in their public libraries. They also appreciate variety in library space: some needed to be in quiet areas with study carrels, while others preferred the busier and more open areas of reading tables and high-traffic seating. It was also noticeable that patrons who frequented the public library regularly had favorite areas in the library where they went to work and read.

Undoubtedly, problems with the physical spaces of the library are very important and can greatly affect the public's perception of the building, so physical concerns cannot be ignored. However, fostering the evolution of the library into a "place" involves more than fixing or improving any physical problems with the premises. Two other key elements are necessary, including, first, facilitating the library as an intellectual place, and second, developing the library's ability to create social capital.

What makes a public library an intellectual place, the kind of place where information-seeking, information use and the pleasurable enjoyment of library materials go hand-in-hand? Much of what makes this happen centers around the work of professional librarians and involves good professional practices, vision, innovation, and experimentation. First and foremost, as we have already noted earlier in this review, the public has a desire to have access to good collection in areas that are of prime interest to them, so excellence in collection development practices are paramount. Furthermore, public librarians add value to collections by the services and programs that they offer, and these value-added elements are not always just about the physical spaces of the library. As one example, we have reviewed how Reader's Advisory services could be so useful to many patrons of the public library. Of course the best way to signal to the public that the library is a "reading place" is to be receptive to questions about reading preferences and to strive for excellence in Reader's Advisory services. Another aspect of Reader's Advisory service that might turn a "space" into a "reading place" could be greater facilitation of browsing by using recommended practices (from Baker, 1996 and Goodall, 1989) such as:

- arrangement of fiction into sections by genre or alphabetically;
- increased shelf-guidance and signage;
- more shelving units allowing face-out display;
- good lighting and comfortable chairs;
- weeding the collection: a smaller, well-used current collection is better than a large and outdated collection;

- keeping the shelves from becoming too crowded;
- providing access to returned books;
- more imaginative displays;
- more reading lists and handy bookmarks, and
- providing a bulletin board for posting book reviews and information about award winners.

There are a myriad of other ways that the library space is turned into an intellectual place, including providing comfortable and appealing spaces and interesting programming for children and young adults, meeting the needs of historical and genealogical researchers, helping community members in their job searches, creating literacy programs and all of the hundreds of other things that public librarians do on a daily basis that signal to the public that the library is a place where study, quiet reflection, research, reading, education, personal growth, development and inspiration are all alive and well.

The second aspect of "place" that we have noted above is building upon the library's ability to create social capital. Social capital can be defined as the "values and social networks that enable coordination and cooperation within society," the glue which strengthens our civil society (Kranitz, 2001). How does the library foster these social connections? Again, there are many formal ways, such as interaction between library patrons and library staff, providing bulletin boards of library/community events, special community programs in meeting rooms and auditoria, children's story time and reading programs, author events, adult book discussion groups and friends of the library, to name a few. However, there are also innumerable informal ways that social capital is created within the library and here the inter-relationships between place and space need to be emphasized. For instance, providing adequate rooms for group study, comfortable chairs for reading magazines and newspapers, having pleasant spaces where librarians and patrons can converse and interact, arranging seating areas to take advantage of inspiring vistas, providing easy access to coffee and food, and providing outdoor benches and seating areas are all ways to facilitate informal interaction among patrons.

It is important, then, that librarians recognize that patrons' spatial needs are not only as diverse as their information needs, but that space and place are closely intertwined with the information-seeking activities in which people engage. Patrons' frustrations or dissatisfaction with public libraries often have more to do with the way that information is packaged or presented in the physical or digital library environment than with the quality or availability of the information itself. By attending to the public's needs for different types of workable, aesthetically and

ergonomically pleasing spaces, public libraries also indirectly serve those individuals' information needs and thus allow the library to develop as a meaningful place in the lives of its users.

## VII. Conclusion: Information-Seeking and Models of the Public Library

The public library is a very resilient institution. It has been, and always will be, many things to many different people but it is unwavering in its fundamental purpose of meeting the public's informational and reading needs and providing a place where those seeking information can find assistance with their queries. It is a place where the public can go to seek information in all of its forms, from conversing with other patrons, to interacting with librarians and other library staff, reading about how to make a rug or repair a bathtub, studying Renaissance architecture, searching through an electronic genealogical archive, browsing the stacks for fiction, surfing the Web for a school assignment or searching a specialized database for job opportunities. Given the breadth of information-seeking that takes place in the typical public library, what model might be appropriate to describe what the library is and does?

Numerous models have been proposed. Simon (2002) sums up a number of them, including the public library as a community center, play space, study hall, lifelong learning center and cultural center. Bundy (2004) provides an even longer list of models, including knowledge warehouse, cathedral of human knowledge, idea center, information switchboard, the community's front porch, the new village green and the street corner university.

David Carr (2003; 2002) and Thomas Augst (2001) argue forcefully that the library is, in the grand sense, one of our foremost cultural institutions, and more specifically acts as an agency of culture. Carr (2002) states that:

Our collections are not only for capturing and holding the culture at hand, they are also structures designed to enable individuals to negotiate the evolving complexities of one life and to recover the powers of personal strength against a thoughtless and uncritical distrust of intellect. Our task, then, as librarians is to rescue our patrons, to enable the broadest and deepest thinking, the kind of thinking that allows us all to go beyond ourselves as we know ourselves, to go beyond our educations, and to go beyond every other limit set upon us by others (p. 284).

Similarly, Augst (2001, p. 16) comments that the library has represented "arguments about the location, form and power of knowledge in

particular social and historical contexts. As a symbolic space, a type of collection, a kind of building, the library gives institutional form to our collective memory."

Carr, Augst and other authors may very well be accurate in their descriptions of the library's overarching cultural purpose and roles. However, in terms of information-seeking and given the prominence of contemporary information technologies in that process, the model that we prefer is the one described by Nardi and O'Day (1999) and that is the public library as an information ecology. An information ecology is:

A place with books, magazines, tapes, films and librarians who can help you find and use them.... In a library, access to information for all clients is a core value. This value shapes the policies around which the library is organized, including those relating to technology. A library is a place where people and technology come together in congenial relations, guided by the values of the library (p. 49).

The authors note that the word 'ecology' evokes diversity in a way that the word 'community' does not. While a community can be diverse, it can also be homogeneous. An ecology, on the other hand, is composed of parts which are as different from one another as "oak trees and scrub jays in a California woodland ecology" (p. 56). The other very useful part of the information ecology model, particularly as far as information-seeking goes, is that librarians are described as a "keystone species" (pp. 53-54). A keystone species is one whose presence is critical to the overall survival of the ecology itself. In the case of a highly technological environment such as the contemporary public library, librarians provide the intelligent searching and filtering that the public so desperately needs. They also provide much more. Nardi (1998, p. 49) comments that, in the course of her research, she was struck by... the "high tech, high touch" service librarians provided their clients. The latest technologies were in use... [but] right alongside them was the enactment of the librarians' ethic of service. The librarians contributed their special human abilities of tact, diplomacy, judgment and empathy. Their contributions turned the librarians we studied into places where clients felt comfortable and cared for, at the same time they were receiving the benefits of the most advanced information technologies.

If we regard the librarian as the beating heart of the ecological body we call the public library, in effect working information through the system so that each patron may find the informative life-blood s/he needs, then patrons' information-seeking behaviors can be seen to be just as vital to the survival of the system as its other attendant parts. This ecological interplay among the library, the librarian and the patron is



what has defined public libraries for the past century. Although the mechanisms will change (as new technologies or new ways of thinking move us forward), the relationship between the public library and those it serves will only strengthen.

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## Providing Library Services for Urban Children: Challenges and Strategies

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### I. Introduction

#### A. The Decline of the City

The U.S. Census Bureau reports that 25.7% of individuals residing in the United States were under the age of 18 in the year 2003 (U.S. Census Bureau, 2004a). Within that group 17.6%, about 12 million children, were living in poverty (U.S. Census Bureau, 2004b). Of the children classified as living in poverty, most lived in metropolitan areas. As defined by the Office of Management and Budget (OMB), metropolitan areas are geographic entities with more than 50,000 inhabitants, or an urbanized area made up of a central place and adjacent territories where the general population density is at least 1000 people per square mile of land (U.S. Census Bureau 2004c). The largest city in a metropolitan area is called a "central city" or an urban center. These densely populated urban cities are home to most children living in poverty in metropolitan areas.

The term "urban" often carries with it references to poverty, crime, or disadvantaged marginalized populations. When searching for information on urban children, terms such as inner-city, at-risk, and socially disadvantaged are listed as related terms and used interchangeably. While this chapter gives attention to disadvantaged urban youth, the term "urban" is used with caution. Not all urban children confront trouble at home, violence in the streets, and/or problems at school. However, the focus of this chapter is "at-risk" children who are often systematically locked out of the benefits of urban life. In this chapter, the term "at-risk urban children" is defined as youth who reside in central cities, and have