Government Documents Reference Service in Canada: A Nationwide Unobtrusive Study of Public and Academic Depository Libraries

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This study reports on a nationwide unobtrusive evaluation of government documents reference service at public and academic depository libraries in Canada. Fifteen questions dealing with subject matter from both the legislative and executive branches of government were asked 488 times at 104 depository libraries in 30 census metropolitan areas. Overall, depository library staff members provided complete answers to questions 29.3% of the time. When complete and partially complete answers are counted together, the success rate climbs to 42.4%. Academic full depositories achieved the highest rate of success, followed by public full depositories. In-person questions were answered more successfully than phone questions. Print materials were by far the largest single source used (45.7%) to answer questions. When print alone was used, complete answers to the test questions were found only 39.9% of the time. When World Wide Web sources alone were used, the complete answer rate was 60.7%. To improve service, extensive and periodic staff training may be needed about the structures and functions of both the legislative and executive branches of government. Staff members need to know what programs are available and who is responsible for which program in the federal government.

Unobtrusive evaluation studies concerning the efficacy of library reference service have consistently shown that librarians are able to offer complete and satisfactory answers to patrons about 55% of the time (Hernon & McClure, 1986) and that five variables (library expenditures, volumes added, fluctuations in the collection, size of the service population, and hours of operation) "reveal a con-

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sistent moderate association with reference accuracy" (Saxton, 1997, p. 281). However, only McClure and Hernon (1983) have focused on the unobtrusive evaluation of government documents reference service. Their study examined academic libraries located in the Northeastern and Southwestern regions of the United States. Results indicate that library staff members answered government documents questions with an overall accuracy rate of 37%. Reference staff in the Northeast did considerably better than reference workers in the Southwest; the former answered questions correctly at a rate of 49%, while the latter did so only 20% of the time (p. 35). Question delivery that occurred by phone was more successful than in-person questions. In the Northeast, for instance, phone questions were answered correctly 64% of the time, while in-person questions achieved a 35% success rate (p. 37). This lower success rate for government reference questions may reflect the more specialized and difficult nature of the subject matter.

McClure and Hernon (1983) received a great deal of criticism for their unobtrusive study. These criticisms are summarized in Hernon and McClure (1987), and range from the contention that correctness alone is not an adequate gauge of service quality, to the objection that the sampling frame of 17 libraries was too small, to the concern that the questions were too difficult or unrepresentative, that there was no guarantee that it was a professional librarian who fielded the query, and that proxies were instructed to act in too passive a manner (pp. 165–167). Durrance (1989) and Tyckoson (1992) argued that a more qualitative approach to evaluation of reference services was needed, one that would take into account the often complex interaction between librarian and user by concentrating on behavioral aspects of the reference process. The results of such studies have suggested that reference success rates are much higher than the 55% rule. For instance, Parker (1996) reports a 72.3% success rate, while Jardine (1995) points to a 99% success rate, as measured by whether the patron would return to the same library staff member with another question.[1]

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1 An intriguing study that falls on the midpoint of the spectrum between unobtrusive reference evaluations and user satisfaction studies was conducted by Childers (1997). After interviewing 57 library patrons in a public library as they left the reference area, he reports that, of the 32 people who sought staff help, 20 (63%) received a complete answer to their question (p. 161). The remaining 25 patrons did not seek staff help, yet they were able to find a complete answer 40% of the time. Childers goes on to point out that, of the patrons who did seek staff help, 72% declared that the information located was very useful, while only 54% of those who did not seek staff help stated that the information they found was very useful. Given the small sample size, the 63% figure for patrons receiving complete answers may be seen as close to the acknowledged figure of 55% success. Childers also reports that 17 people chose not to participate in the interviews after they were initially approached. As well, this study was conducted at a single public library in an affluent community. Still, Childers' methodology has a number of merits, especially if his 11-question survey instrument could be made more detailed.

Hults (1992), however, observes that studies of this nature "beg the question" because what the library community "really needs to address" is the question of whether a 55% accuracy rate "is acceptable [and] if not, what priority do libraries place on improving that rate" (p. 143). She observes that many public and academic libraries have adopted policies in which unobtrusive testing of the service provided by reference staff is a vital part of self-evaluation studies. Certainly, there are many ways to evaluate the quality of reference service, but "accuracy of information . . . seems the baseline to work from" (p. 143). Altman (1982) goes even further, arguing that the dismal results uncovered by unobtrusive studies "call into serious question the quality of information services currently provided" (p. 174). Who, she asks, would trust a doctor "who could affect a cure for only half of the patients," or an accountant whose work was audited "as defective" half the time by the Internal Revenue Service? Libraries, she concludes, have a responsibility "to render a service equal in quality to what we expect to receive from other professional groups" (p. 175). Simply stating that any perceived problem is "much more complex" than at first sight fails to recognize that any benefits of a service "cannot occur if elements in the delivery system break down along the way." Accordingly, if librarians are "not willing to accept measures which can point up deficiencies as well as the strengths of our information services, then we should have the integrity to stop discussing measurement and evaluation" (pp. 181–182). Hernon and Altman (1998) point to a study of *Fortune 1000* executives indicating that "accuracy was the most important factor in determining service quality." In a library setting, they argue, key measures of accuracy are whether "shelves are regularly read for misplaced or hidden books," whether "items returned are discharged properly so that customers are not charged fines," and whether "answers to reference questions are correct and complete, which means that the library must ensure that information about current situations is kept up to date" (pp. 176–177). Hernon and Altman (1998) maintain that statistics about patron satisfaction should therefore be understood through the prism of work conducted by Johnston (1996), who suggests that "customers who are merely satisfied with a company or service [are] in a zone of indifference toward a continuing relationship with company or service" (p. 7). Libraries should thus try to avoid a situation where "library performance is poor and expectations are low, but customers appear indifferent or satisfied (Hernon & Altman, 1998, p. 15). Hernon, Nitecki, and Altman (1999) stress that customer satisfaction and overall service quality should not be confused. The former is a "transaction-specific . . . short-term measure [which] focuses on a personal emotional reaction to service," while the latter is a long-term measure relating to the expectations not only of actual customers, but also "lost customers" and "never-gained" customers" (pp. 11–12).

Accuracy, in other words, is a key component in evaluating library service quality. Unlike the analysis of other aspects of the reference procedure such as question negotiation, search strategies, and subject analysis, unobtrusive testing

emphasizes the user's perspective and can offer useful insights into the quality of service provided to library patrons (McClure & Hernon, 1983, p. 11). The benefits of unobtrusive testing have been identified by Lancaster (1977) as including: staff members are observed under operating conditions assumed to be normal; the success with which staff members answer various types of question can be measured; and there is an opportunity to make conjectures about the reasons for incorrect answers (pp. 77–136). Hernon and McClure (1987) note that 22 unobtrusive evaluations of reference service were conducted at various types of libraries between 1968 and 1986. Since 1986, Hults (1992) reports that many public and academic libraries have adopted policies in which unobtrusive testing of the service provided by reference staff is a vital part of self-evaluation studies. Czopek (1998) describes how a public library in California took advantage of a "mystery shopper" service offered by the local chamber of commerce to aid businesses in evaluating service quality.[2]

BACKGROUND AND PURPOSE OF RESEARCH

Governments at all levels are rapidly moving to the electronic dissemination of official information through Web-based protocols. By the end of 1997 and early 1998, many departments and agencies have already achieved impressively successful results in transferring their documentation to electronic supports. The United States and Canada have been leaders in implementing digital access to government publications (Aldrich, 1998; Beamish, 1999; Clausing, 1999; Farrell, Davis, Dossett, & Baldwin, 1996; Ryan, 1997). Systematic examination of the readiness of federal depository libraries to effect a smooth transition to electronic formats is essential if the public is to benefit from rapid, cost-effective, and timely availability of a profusion of rich resources. To this end, in the fall of 1996, the Depository Services Program (DSP) in Canada funded the first extensive examination of the state of readiness of depository libraries in Canada to adopt new electronic technologies. Dolan and Vaughan (1998) and Vaughan and Dolan (1998) reported and analyzed the results of a project to investigate the technological capabilities and related services required by depository libraries to provide permanent public access to Canadian federal government information in electronic form. The study was conducted through a self-administered questionnaire that was sent to all full and selective depositories in Canada and abroad to collect both quantitative and qualitative data. Results of

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2   Unobtrusive testing has recently been in the news in Canada, as attested by a report in *The Globe and Mail* describing Health Canada's effort to discover whether retailers are complying with a law that forbids the sale of tobacco to minors (McIlroy, 1998, pp. A1, A10). An account in the *New York Times* offers another example: undercover shoppers, posing as customers, are paid by marketing agencies to grade service in stores so that retailers can evaluate themselves (Steinhauer, 1998, pp. C1, C23).

this work indicate that, while a majority of the libraries surveyed consider official publications to be a very important or essential part of their collections, depositories are severely pressed by the demands of developing new methods of handling documents in electronic form, providing help to patrons in the use of the new technologies, and meeting the associated costs. Respondents to the survey acknowledged the potential of the Internet for timely access to government information, but expressed reservations in the following areas: inadequate bibliographic control and archiving; the threat of inequitable access if fees for service are imposed; the transfer of publishing costs from the government to libraries if they are expected to download and print documents available only on the Internet; and the demands of staff training and costs of maintaining and replacing equipment. The study also found a significant degree of uncertainty among depositories about the future use of government information when it is available primarily in electronic form. Recommendations were made for further study of related issues, among them the nature of adequate reference service associated with collections of official publications. In late 1997, the DSP funded a second inquiry, this time focusing on the reference process in Canadian full and selective depository libraries.

Effectiveness in providing accurate answers to reference queries is a central element in the provision of public access to official information. This present study reports on the results of an unobtrusive examination of reference encounters carried out in full and selective depository libraries in all five geographic areas (Atlantic Provinces, Quebec, Ontario, Prairie Provinces, British Columbia and the northern territories) of Canada. Full depository libraries, of which there are 48 in Canada, automatically receive all publications listed in the *Weekly Checklist* of Canadian government publications. Typically, full depositories are located in public libraries in large urban centers and in major academic research libraries. Full depositories have the financial and staff resources to house, maintain, and provide professional access to federal government information. The 754 selective depositories in Canada choose items they wish to order for their collections from the *Weekly Checklist.* Selective academic libraries are typically located in undergraduate university libraries and in community college institutions, while selective public depositories are typically located in smaller urban centers. This is the first unobtrusive study of government documents reference service since McClure and Hernon (1983) and Hernon and McClure (1987), the first nationwide evaluation of government reference service in Canada, and the first to be conducted in an age of electronic government information provision.

For this investigation, 15 government documents-related question were developed to elicit the following information:

- The accuracy of the answers;
- The extent to which library staff used electronic sources such as the World Wide Web;
- The degree to which staff members engaged in referral;

- The types of questions that tended to be referred;
- The effect of asking questions over the telephone;
- The value of separate government document reference desks; and
- The level of knowledge of official sources and expertise in using them displayed by the librarians and other staff members to whom the queries were addressed.

The test questions cover major categories of Canadian federal documents of interest to various sectors of the public and were modeled after actual queries such as those compiled by the Inquiry Desk of the Transport Canada Library and Information Center (Canada, 1986).

The purpose of this study is to investigate how well library staff in Canadian federal depository libraries answer government documents reference questions and whether they are using Internet-accessible and Web-based sources to do so. The key research questions are:

- What is the degree of accuracy of government reference service in Canadian academic and public libraries that participate in the Federal Depository Services Program, as measured by the number of complete answers supplied by library personnel to specific questions?
- To what extent do staff members in these libraries use electronic information sources such as CD-ROMs and the range of Web sites made available by the Canadian federal government?
- Which categories of government reference questions are the most difficult to answer for library staff personnel at depository libraries?

While there are legislative libraries with full depository status in most provinces, public access to government documents is most readily achieved through public and academic libraries. Accordingly, the research questions developed for this study were examined through the lens of four categories of Canadian depository libraries: academic full depositories; academic selective depositories; public full depositories; and public selective depositories.

METHODOLOGY

This study was conducted using paid proxies. Quality of reference service was operationally defined as the percentage of complete or combined complete and partially complete answers to 15 government documents questions. Selection of tested libraries was based on a proportionally stratified cluster sample. On the first level, proportional stratification was effected on the basis of the five geographic areas of Canada. On the second level, clusters of cities and towns within the geographic areas were identified, and a convenience sample of public and

academic depository libraries was taken to reflect the proportion of these libraries in the depository system as a whole. Fifteen questions were asked 488 times at 104 libraries in 30 metropolitan census areas as defined by Statistics Canada. Each proxy package consisted of 15 different questions and a brief survey form. Proxies were recruited from students enrolled in a Masters of Library and Information Science (MLIS) program at a major Canadian university. Questions were asked from December 10, 1997 to February 10, 1998—a period during which many students traditionally return to their hometowns for the holiday season.

Questions asked in each of the five geographic areas reflect approximately the population distribution of Canada as determined by the 1996 census. Seventy-five questions (15.3%) were asked in the Atlantic region; 105 (21.5%) in Quebec; 165 (33.8%) in Ontario; 90 (18.5%) in the Prairie Provinces; and 53 (10.9%) in British Columbia and the northern territories. To ensure complete national coverage, questions were asked in *each* province and in at least one of the territories. As a result, the Atlantic and Prairie regions are slightly overrepresented. Atlantic Canada is overrepresented not only because of the inclusion of libraries in Prince Edward Island, but also because Moncton, New Brunswick, was chosen as a test site to take into account the demographic reality of a francophone population outside of Quebec. Consequently, British Columbia, Ontario, and Quebec are slightly underrepresented in relation to their national population percentage. Table 1 shows the extent of this under- and overrepresentation.

Since the sampling frame was confined to public and academic libraries which make up 88.9% of the total number of depositories, the proportion of questions asked was made to conform approximately to the proportion of public libraries and academic libraries, respectively, within the sample. Public libraries make up 50.8% of Canadian federal depositories, academic libraries constitute 38.1%, and legislative libraries make up the remainder.[3] Thus, 296 questions (60.7%) were asked at public libraries, while 192 questions (39.3%) were asked at academic libraries. Some 49% of the questions were asked at public selective depositories, while 26% were asked at academic full depositories. Put another way, 38% of the questions (186 questions) were asked at full depositories (public and academic), while about 62% (302 questions) were asked at selective depositories (public and academic).

Since there are 790 depository libraries in Canada, of which only 48 enjoy full depository status, the study disproportionately concentrates on full depositories. But because full depositories, whether public or academic, tend to be concentrated in major population centers, they are accessible to a large percentage of the total Canadian population and thus provide good indicators of

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3   Legislative libraries were excluded from this study because members of the general public do not generally use them.

TABLE 1
Comparison of Regional Population Distribution and Distribution of Questions

	National Population (%)	Questions Asked (%)	Under- or Overrepresentation (%)
Atlantic	8.1	15.3	+7.2
Quebec	24.7	21.5	−3.2
Ontario	37.3	33.8	−3.5
Prairies	16.6	18.5	+1.9
British Columbia/North	13.2	10.9	−3.3

the type of reference service that is available to a significant number of Canadians. Conversely, many of the public selective libraries are in small towns, and often do not opt to carry a wide range of official publications.

The choice of cities to which proxies were sent was based on the 25 most populous census metropolitan areas as defined by Statistics Canada in the 1996 census. In selecting cities the following factors were taken into account: the availability of student proxies who were traveling to their hometowns over the holidays; the presence of a full depository library in those 25 most populous census metropolitan areas; the fact that a geographical distribution that approximated the regional diversity of Canada was required; and the necessity of asking questions in all provinces and in one of the territories.

In total, proxies were sent to 30 different metropolitan census areas. Twenty-three of those areas were among the 25 most populous metropolitan census areas as reported by the 1996 census. The three largest centers were assigned two proxy packages each. Smaller centers were assigned one half of one proxy package. And, to include at least a few small public selective depositories, two students whose holiday itineraries would cause them to travel between two major metropolitan centers were asked to make stopovers at some of the public selective libraries in towns on the path between the two major centers. In total, ten questions were asked at such small public selective depositories. The populations contained in these census metropolitan areas include 61.8% of the total population of Canada. Of the total 488 questions, 105 were asked in metropolitan areas having over one million inhabitants; 80 were asked in metropolitan areas having a population between 500,000 and 999,999; 75 were asked in areas having a population between 250,000 and 499,999; 172 in metropolitan areas with between 100,000 and 249,999 inhabitants; and finally, 56 questions were asked in those areas with a population of less than 100,000.

Fifteen government documents questions were developed and tested before they were given to the proxies. McClure and Hernon (1983) established 20 different types of U.S. government documents for their unobtrusive study. Some of these types are: statistics; administrative reports; directories; maps; bills; laws; regulations; debates; agencies/boards; and periodicals. Fifteen of their categories were chosen and adapted where necessary to suit the Canadian context. Appro-

priate questions were then developed for the present study. All questions could be answered using either print or Web-based sources. Five questions were designated as phone questions, while the remaining ten questions were in-person questions.

In addition, the questions were divided into two groups: one dealing with documents emanating from the legislative branch of government (i.e., bills, statutes, debates, and parliamentary procedure) and one pertaining to those produced by the executive branch (i.e., departmental reports, statistics, directories, and periodicals). Questions were also classed according to whether they dealt primarily with data retrieval or document retrieval. Although recognizing the fluid nature of almost all reference questions, Katz (1996) writes that this is "[a] useful method of distinguishing types of queries" (p. 18). Data-retrieval queries are those for which individuals ask "specific questions and expect answers in the form of data." Document-retrieval queries are those for which patrons "want information, not just simple answers," and the information is "usually in the form of some type of document" (p. 18).

Proxies were provided with printed forms containing one reference question each. A full proxy package consisted of 15 reference question forms. Information about whether the question was an in-person question, telephone question, a legislative branch question, or an executive branch question was printed on the form. In addition to providing the reference questions themselves, the forms asked the proxies to supply some answers about selected institutional variables and question variables. Institutional variables included the type of depository library and whether it had a separate area or desk designated for government reference service. Question variables included day of the week and time of day when the question was asked, time spent by library staff member with proxy, and the degree of busyness at the reference desk where the question was asked. Whenever proxies received an answer, they were asked to state as fully as possible the answer itself and the source used to provide it. Moreover, even if they did not receive an answer or were referred, proxies were asked to write down everything that happened during the reference interview. Proxies did not know the correct answers to the questions that they asked. This was a conscious decision taken on the part of the investigators to simulate as closely as possible a real situation in which a reference question would be asked by a member of the public.

Proxies were recruited during the late part of November, 1997, to take advantage of the traditional holiday season when many students travel to their various hometowns. It was not possible to recruit proxies from MLIS students for several selected cities with full depositories. In these cases, students were asked to contact friends or family members residing in those identified cities, and to ask them if they would be willing to participate in the study. A $200 honorarium was paid for the completion of each proxy package. A training session was held in December, 1997, when the proxies were provided with extensive instructions about all aspects of the study. Proxies unable to attend the training session were provided with detailed written instructions about the purpose,

conduct, and procedures of the study. Each proxy was provided with a complete set of printed question forms and a list of libraries at which the questions were to be asked. Beside each named library on this list was a library type designation, that is, whether the library in question was an academic full depository, an academic selective depository, a public full depository, or a public selective depository. Proxies were repeatedly told *not* to indicate the actual name of the visited or telephoned library on their question forms; rather, they were merely to indicate the *type* of library at which each question was asked. Any questions that the proxies had about the nature of the study were discussed and answered in order that proxies understand clearly what they were expected to do. Stress was put on the importance of providing as completely as possible the source of any answer to each reference question, that is, whether it was a CD-ROM product, a book, or a World Wide Web address. Proxies were told that they could visit the library or telephone the library on any day of the week and at any time of the day of their choosing between December 10, 1997 and February 10, 1998. To preserve institutional and individual anonymity, there was no linkage of specific test sites with results. The issue of informed consent and debriefing was addressed through a message sent by the DSP to the directors of all depository libraries.

A research assistant entered the data. For most items such as constitutional region, day of week question was asked, and time spent with patron, data entry was straightforward. Particular attention, however, was paid to coding for the *type* of answer the proxies received in response to each question asked. The primary reason for this was that the proxies merely recorded whether they received an answer; they did not record whether it was a complete or incorrect answer. The coding scheme adopted for this study is a modified version of a grid developed by Richardson (1998), itself a modification of Gers and Seward (1985) and Elzy, Nourie, Lancaster, and Joseph (1991). Richardson's definitional descriptions were retained, but his evaluation levels were reworked and simplified into four categories. Richardson's categories of "excellent" and "very good" were collapsed into the category of "complete answer;" his categories of "good" and "satisfactory" were collapsed into the category of "partially complete answer;" his category of "fair/poor" was retained intact, but was renamed "referral." Finally, Richardson's bottom three categories of "failure," "unsatisfactory," and "most unsatisfactory" were categorized as "no/incorrect answer." Table 2 summarizes the modifications.

We also wanted to know exactly where a proxy was referred. Types of referral were coded as follows: another nongovernment library; government or legislative library; government department; external nongovernment agency or establishment. Data were entered into an electronic file (Microsoft Excel, Version 7), and charts were generated in various versions of Microsoft Excel. Results of statistical analyses are reported in aggregate form only.

Many of the results of the study are analyzed and reported so that separate figures are provided for "complete answers" and for "complete or partially complete answers." This reflects the two types of reference service identified by Katz (1982) and described as "liberal" and "conservative." A liberal philosophy

of reference service is defined as one in which the librarian "give[s] the greatest amount of help to people" and where it is understood that "[t]he primary function of a reference librarian is to answer questions [by] giving total service." A conservative philosophy, on the other hand, is characterized by a librarian who "points rather than assists," that is, showing the patron a possible direction and path, and then leaving the patron to locate the final answer (pp. 32–33). Results designated "complete answers" reflect the liberal approach to reference service, while those termed "complete or partially complete" exemplify the conservative philosophy.

A preliminary list of 32 questions was developed by the researchers and tested by two students enrolled in an MLIS program. The students were approximately halfway through the program; both students had some knowledge of Web sources and Internet searching skills. One student (Student A) was enrolled in a government documents course; the other (Student B) had never taken such a course. The reason for this procedure is as follows. One criticism levied against McClure and Hernon (1983) was that their proxies did not know whether the people to whom they talked at library reference desks were government documents specialists, generalist reference librarians, or paraprofessionals. McClure and Hernon felt that this criticism was unfair. After all, members of the public do not know about the distinctions between library staff members, nor inquire about them at the reference desk. Patrons simply want their questions answered. To take into account criticisms about this aspect of the McClure and Hernon (1983) study, questions were chosen that could be answered by individuals who had had special training in government documents as well as those who had not had such special training. The students were told they could use either electronic or print sources to find the answers to these questions; each chose the Internet. In order that the project not take them away from their school work for an overlong period, they were advised to spend no more than 15 minutes searching for the answer to each question.

The results indicate that Student A found the answers to 26 out of the 32 questions (81.3%). Student B found 23 answers (71.9%). Both students found

TABLE 2
Modified Richardson Coding Scheme

Coding	Definition
Complete Answer	Referred to single source, complete and correct answer OR referred to several sources, one of which gave complete and correct answer.
Partially Complete Answer	Referred to single source, none of which leads directly to answer, but one which serves as a preliminary source OR referred to several sources, none of which leads directly to answer, but one of which serves as a preliminary source.
Referral	No direct answer; referred to external specific source or person or institution.
No/Incorrect Answer	No answer; no referral (I don't know) OR referred to single inappropriate source OR referred to several inappropriate sources, none of which answers question correctly.

all their answers in Web-based documents. For the 26 questions that Student A answered completely, the average time spent searching was 5 minutes. For the 23 questions that Student B answered completely, the average time spent on each question was 8.2 minutes. The high success rate of the students in finding complete answers to these questions in relatively short periods showed that almost all of these questions could be answered by *all* library personnel, no matter their level of specialization in government sources.

Questions were chosen that represented various levels of difficulty based on the time spent by these two students in searching for answers. The mean time spent by the students on each question was calculated. Questions for which the two students did not find answers, that is, questions that "timed out," were arbitrarily assigned a value of 20 minutes. Five levels of difficulty were created based on time spent answering the questions as follows: 0–4 minutes; 5–9 minutes; 10–14 minutes; 15–19 minutes; and more than 20 minutes. The choice of the final 15 questions to be used during the study depended on two factors. First, there had to be as close to a statistically normal distribution as possible with respect to the time needed to answer the questions. Second, a broad cross-section of types or categories of government questions, as defined by McClure and Hernon (1983), was felt to be desirable. Seven of the questions could be answered in less than 10 minutes, five questions could be answered in a period of time ranging from 10 to 14 minutes, and only three questions required more than 15 minutes to answer. The curve is very close to being normal, with a mean of 9.26 minutes, a median of 10 minutes, and a modal value of 10 minutes. In other words, the mean time spent answering these questions by the two student pre-testers was a little over 9 minutes. Twelve of the 15 questions were completely answered by both student pre-testers; two questions were answered by one or the other pre-tester; and only one question was unable to be answered by either pre-tester. Table 3 presents the final choices for the 15 questions. Questions 1–5 were telephone questions, while questions 6–15 were in-person questions.

The column labeled "type of question" provides three pieces of information. First, it indicates the specific type of government document in which the answer can be found; second, it indicates whether the question deals with the executive arm or legislative branch of government; and third, it classifies the question as to whether it is primarily a data- or document-retrieval question. To be sure, historical questions are not included here. On the other hand, a number of questions directly pertaining to government services were included. Questions 2 and 13 deal with ordering various government products, while questions 12 and 15 deal with employment and business possibilities.

LIMITATIONS

One limitation of this study derives from the fact that each depository library did not have an equal and independent chance of being selected for inclusion in

the study. *All* public full depositories and academic full depositories in Canada, with the exception of one, were visited by proxies for the purposes of this study. The inclusion of many public selective and academic selective libraries in the sample therefore depended on the presence of a full depository library in a particular census area. Random selection of depository libraries therefore did not take place. However, the sampling frame was large and national in scope; external validity is therefore present. Another limitation stems from the fact that there was little control over the exact wording used by individual proxies asking questions at various reference desks. While they were told in each case to stress that questions were government-related and to ensure that they mentioned all key concepts in each question, it is logical to expect that there were differences in emphasis from one proxy to another when individual questions were asked. As McClure and Hernon (1983) noted in their study, "it is possible that proxies failed to provide accurate renditions of the test questions" (p. 22). Proxies were also instructed, during phone questions, to systematically ask for a source. This may have been seen as an uncommon request by some staff members, although none of the proxies reported problems in this area.

McClure and Hernon (1983) and Hernon and McClure (1987) have carefully and thoroughly established the validity and reliability of unobtrusive testing in measuring the quality of documents reference service. Yet, it must be acknowledged that fact-based questions of the type used in their studies and this one account for a small proportion of the total number of reference queries. Childers (1987) suggests that queries with factual and unambiguous answers may make up only about one-eighth of the volume in reference departments. In an obtrusive study of five northern California libraries, Whitlatch (1989) found that factual questions were only asked 11.3% of the time at reference desks, while bibliographical questions were asked at a rate of 18% and subject/instructional questions were asked 70.7% of the time. The success rate for factual questions in this study was 78.6%; for bibliographic questions and subject-instructional questions, the success rates were 70.5% and 62.6%, respectively. Compiling the results of 71 Wisconsin-Ohio Reference Evaluation Program surveys, Murfin (1995) found that factual-based transactions represent 21% of all in-person reference questions at academic libraries and 18% at public libraries (p. 235).

The choice of time period in which to ask the questions could also be faulted. Levels of expertise may be reduced during the holiday season, since key staff may have priority in release time over this period and thus may not be available for desk duty. On the other hand, holidays may be taken at any time during the calendar year, and so there does not exist a perfect time to conduct a study such as this one. Indeed, the December-January holiday season may be less busy than usual at libraries—a circumstance which might provide more time for staff members to answer reference questions.

One of the central issues in this study deals with the extent to which depository libraries are able to cope with reference questions by using the Internet. Queries requiring the use of retrospective sources were not included since most

TABLE 3
List of Questions

No.	Type of Question	Short Name	Full Wording of Question	Average Time Spent by Pre-Testers
1	Directory; Executive; Data	CRTC	Who is the Chair and other full-time members of the CRTC (Canadian Radio-Television and Telecommunications Commission)?	2
2	Bibliography; Executive; Data	Book	I want to order a copy of *Aboriginal Self-Government* by Jill Wherrett, published in 1996. I'm sure it's a government document, and I specifically want to know how much it costs and any ordering instructions.	12.5
3	Agency or Board Report; Executive; Data	Barley	I'd like to know what the total payments were per bushel of barley for 1995–1996? Specifically, I'm interested in the category "select two-row" of designated barley.	10
4	Statistics; Executive; Data	Lyrics	I'd like to know how many new Canadian-content sound recordings (albums, tapes, CD's) released during 1990–1994 have French lyrics?	15.5
5	Statute; Legislative; Document	Fuels	I'd like to get the text of the act that requires crown corporations to power their motor vehicles with fuels that do not harm the environment. How many of their vehicles have to use these nonconventional fuels?	5
6	Committee Report; Legislative; Document	Firearms	There was a parliamentary subcommittee on the draft regulations that submitted a report to the House of Commons in January or February of 1997. I'd like to see a copy of this report.	15
7	Administrative Report; Executive; Document	Audgen	I'd like to know if the Auditor-General said something in the 1992 annual report about forest management practices of natives, specifically about the good job done by the Stuart Trembleur Lake Band.	3.5
8	Bill; Legislative; Document	Crime	I'd like to see a bill that was introduced into the House of Commons this past fall. It has to do with the profits convicted criminals might make if they were to publish books about their crimes.	10

(continued)

Table 3
Continued

No.	Type of Question	Short Name	Full Wording of Question	Average Time Spent by Pre-Testers
9	Debates; Legislative; Document	Magdal	I'm doing a class project about the Magdalen Islands, and there was talk about closing the marine radio station there. I'd like to know if anything was said in the House of Commons about this topic in the last year, and if anything has been decided about its fate.	10
10	Procedures; Legislative; Document	Rules	I'd like to know the complete set of rules that govern Question Period in the House of Commons.	3.5
11	Administrative Guidelines; Executive; Document	Refugee	I want to know if there is any official document about the possibility of immigrating to Canada as a refugee because of persecution based on gender.	12.5
12	Contracts; Executive; Data	Garbage	Someone I know is looking for work hauling garbage. Would there be any specific opportunities to put in bids for contracts in this field with the federal government?	20+
13	Maps; Executive; Data	Photo	My mother's birthday is coming soon, and I want to order a color enlargement of an aerial photograph of the lake where my parents have their summer cottage as her present. Could I have a price list for the enlargements, and information about what I need to order such a photograph?	7.5
14	Regulations; Executive; Document	Fish	Can you help me find any regulations or enabling statutes associated with the *Fisheries Prices Support Act?*	5.5
15	Periodicals; Executive; Document	Africa	Does any government department put out any newletters or bulletins about business opportunities in Africa? If so, I'd like a copy of the latest one.	6.5

Web documents have been produced very recently. This explains the absence of historical questions. Relationships between, on the one hand, institutional variables (e.g., budget, collection size, staffing, and education levels of staff) and, on the other, success in answering proxy-administered questions, were not explored. Information of this kind could lead to the collocation of unique data. Instead, each of the four types of depositories are roughly characterized by a general institutional profile. As mentioned previously, public full depositories are in large public libraries in large urban centers, and thus typically have large budgets and extensive professional staffs. Full academic depositories are typically located in major research universities. Selective academic depositories are located in smaller undergraduate universities or community colleges, while public selectives are located in public libraries in less-populated urban centers.

RESULTS

Overall Accuracy Rate

Proxies were not given instructions about the day of the week or the time of day when they were to ask questions. Yet, the distribution of questions across the week (Monday to Saturday) is relatively uniform. Proxies asked 14% of their questions on Monday. The peak times for questions were Tuesday, with 20% of the total, and Wednesday, with 18%. On Thursday and Friday, 14% and 15% of the questions, respectively, were asked, while on Friday, the figure was 12%. On Saturday, 17% of the questions were asked. By far the lowest percentage of questions, only 5% of the total, was asked on Sunday. Just over two-thirds of the questions (67.8%) were asked in the afternoon, while about a quarter of the questions (23.2%) were asked in the morning. Only about 9% of questions were asked in the evening. The skew towards afternoon questions may not represent typical usage patterns.

Complete answers were provided to 29.3% (143 questions) of the 488 questions. When complete and partially complete answers are taken together, reflecting the conservative philosophy of reference service, the success rate climbs to 42.4% (207 questions). Library staff members referred 20% (98 questions) of the 488 questions. No answers or incorrect answers to questions were received 37.5% of the time (183 questions). Figure 1 displays the results.

Type of Depository and Geography

While the overall rate of complete answers was 29.3%, there were statistically significant differences among the four types of depository libraries ($\chi^2 = 29.13$, $df = 9, p < .01$, Cramér's $\phi_c = .141$). The highest rate for complete answers was achieved by academic full depositories, at 39.4% (50 out of 127 questions). Public full depositories provided complete answers 32.2% of the time (19 out of 59). Academic selective depositories performed at 29.2% (19 out of 65), and
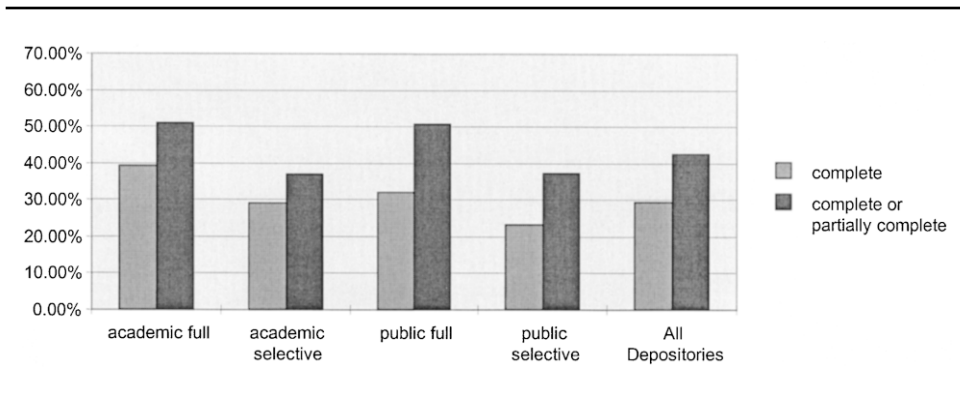
FIGURE 1
**Distribution of Responses Received**
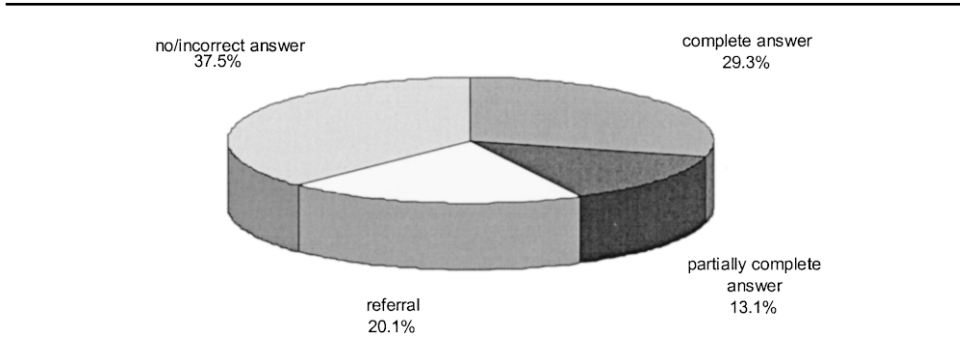
public selective depositories lagged behind, with 23.2% (55 out of 237). When complete and partially complete answers are taken together, academic and public full depositories show an almost identical rate—51.2% (65 out of 127) and 50.9% (30 out of 59), respectively. Both types of selective libraries also gave either complete or partially complete answers at about the same level of success—37.1% for public selectives (88 out of 237) and 36.9% for academic selectives (24 out of 65) (see Figure 2).

The data were also analyzed by geographic area. Figure 3 summarizes these findings. Ontario displays the best performance, with a rate of 38.2% complete answers (63 out of 165 questions) and a rate of 57.6% for combined complete or partially complete answers (95 out of 165). Depository libraries in British Columbia (including one location in the northern territories) provided complete answers 35.9% of the time (19 out of 53), and at a rate of 45.3% for complete or partially complete answers (24 out of 53). Depository libraries in the

FIGURE 2
Responses Received by Type of Depository Library

FIGURE 3
Types of Responses Received by Region
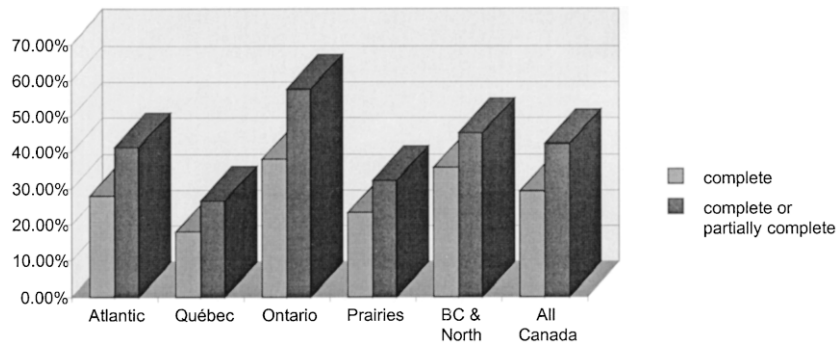
Atlantic Provinces gave complete answers to 28% of the questions (21 out of 75); combined complete or partially complete answers were given 41.3% of the time (31 out of 75). Ontario and British Columbia provided complete or partially complete answers at or above the national rate for complete answers, and for combined complete or partially complete answers. Atlantic Canada conformed to the national average.

The Prairie Provinces and Quebec fall below the national average for complete and partially complete answers. In the Prairies, staff at depository libraries were able to answer questions completely at a rate of 23.3% (21 out of 90 questions), while combined complete or partially complete answers were provided 32.2% of the time (29 out of 90). In Quebec, complete answers were given at a rate of 18.1% (19 out of 105), while combined complete or partially complete answers were elicited 26.7% of the time (28 out of 105). Differences across regions are statistically significant ($\chi^2 = 33.54$, $df = 12$, $p < .01$, Cramér's $\phi_c = .151$).

We also analyzed success rates by region and type of library. In the Atlantic Provinces, for example, 43.1% of public selective library answers were complete or partially complete (19 out of 44 questions), while 42.1% of academic full depository answers were complete or partially complete (8 out of 19). Academic selective depositories in Atlantic Canada answered completely or partially completely 33.3% of the time (4 out of 12). No public full depositories exist in Atlantic Canada, but results suggest that in this region equally good service for government reference questions is available at public selective libraries and academic full libraries, while academic selective libraries lag behind.

In Quebec, academic full depositories answered 47.8% of the questions completely or partially completely (11 out of 23). By contrast, academic selectives provided 10.5% of such answers (2 out of 19). Taken together, public full and public selective libraries gave complete or partially complete answers 23.8% of the time(15 out of 63). In Quebec, academic full depository libraries answered

government reference questions most effectively. Public depositories and academic selective depositories in Quebec were notable for poor success rates.

In Ontario, academic full depositories answered 55.8% of the questions completely or partially completely (29 out of 52); academic selective libraries, 58.3% (7 out of 12); public full depositories, 61.1% (22 out of 36); public selective depositories, 56.9% (37 out of 65). Proxies in Ontario received markedly similar and relatively high levels of government documents reference service no matter what type of depository library they visited.

In the Prairie Provinces, both academic full and selective depositories provided complete or partially complete answers 47.1% of the time (8 out of 17 questions each). Taken together, public full depositories and public selective depositories give such answers 23.2% of the time (13 out of 56). Results from Quebec and the Prairie Provinces are strikingly similar. Academic libraries in the Prairies successfully answered questions at twice the level of success of public depository libraries in that region. In British Columbia and the North, academic full depository libraries provided complete or partially complete answers 56.3% of the time (9 out of 16), while the performance for academic selective libraries was 60%. Both types of public libraries provided such answers 37.5% of the time (12 out of 32).[4]

Results show that the level of government documents service is associated with region and type of depository library. In general terms, a patron in Quebec, the Prairies, and British Columbia might be well advised to seek out an academic depository library, preferably an academic full depository, for government information. In Atlantic Canada and Ontario, however, similar levels of government information service are provided by all four types of depository libraries, with the exception of academic selective depositories in Atlantic Canada.

Separate Government Information Area

A likely determinant of the level of government documents reference service is the presence of a specific area or reference desk that deals solely with government reference questions. Having such a special area may indicate the availability of specialist librarians who devote some or all of their time to official publications. Proxies asked 44.3% of questions (216 questions) at depository libraries that had separate government reference areas and 52.6% at depository libraries that did not have such separate areas (257 questions).[5]

Depository libraries without separate areas for government documents reference service answered 24.9% of the questions completely (64 out of 257).

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4   Public full depository and public selective depository figures are reported together for Quebec, British Columbia, and the Prairies because, in each region, there is only one public full depository library. Identification of this library would therefore be possible. Anonymity is preserved by conflating results for both types of public depositories.

5   Proxies could not answer with certainty about this issue 3% of the time.

They provided complete or partially complete answers 39.3% of the time (101 out of 257). Depository libraries that had separate areas for government documents reference service provided 35.2% complete answers (76 out of 216) and 47.2% complete or partially complete answers (102 out of 216). These differences are statistically significant when complete and partially complete answers are placed in one category, while no/incorrect answers and referrals are placed in another category ($\chi^2 = 4.85$, $df = 1$, $p < .05$, $\phi_c = .102$). Table 4 summarizes the impact of a separate government documents reference area on complete answers by type of depository library.

Those full depositories that have separate reference areas for government questions tend to provide more complete answers than did those institutions without such areas. The tendency was most pronounced in public full depositories, although the difference in academic full depositories is also noteworthy. Similarly, public selective depositories with a separate reference area for government documents provided complete answers at a rate of 29.6%, while those without performed at 20.9%. For academic selective libraries, the difference between those institutions that do and do not have separate areas is very small.

Time Spent Answering Questions

Proxies gathered information about how long library staff members spent with them in answering their questions. Minutes were grouped into the following categories: 0–4 minutes; 5–9 minutes; 10–14 minutes; 15–19 minutes; and more than 20 minutes. Library staff members spent up to 4 minutes with each patron 32.8% of the time (160 questions); 5–9 minutes, 24.4% of the time (119 questions); 10–14 minutes, 16.4% of the time (80 questions); 15–19 minutes, 8.8% of the time (43 questions); 20 minutes or more, 9.4% of the time (46 questions). Phoneback situations arose on 40 questions (8.2%).

Another point of interest was the relationship between time spent with patrons and complete or partially complete answers. Differences in types of answers received are statistically significant ($\chi^2 = 70.29$, $df = 15$, $p < .01$, Cramér's $\phi_c = .219$). In those reference encounters where a staff member spent

TABLE 4
Effect of Separate Area on Complete Answers

|	Separate Area	No Separate Area
Academic Full	30/67	19/54
	(44.8%)	(35.2%)
Academic Selective	8/30	9/29
	(26.7%)	(31%)
Public Full	17/48	2/11
	(35.4%)	(18.2%)
Public Selective	21/71	34/163
	(29.6%)	(20.9%)

up to 4 minutes with a patron, complete answers were received only 11.3% of the time (18 out of 160 questions), while complete or partially complete answers were received at a rate of 21.3% (34 out of 160). As the amount of time spent with a patron increased, the number of complete or partially complete answers also increased. For example, spending between 5 and 9 minutes with a patron is associated with complete answers 31.9% of the time (38 out of 119), and with complete or partially complete answers 43.7% of the time (52 out of 119). In those instances when a staff member spent more than 10 minutes with a patron (i.e., the categories 10–14 minutes; 15–19 minutes; and 20 minutes or more), the rate of complete or partially complete answers rose to 56.8% (96 out of 169). Moreover, when staff members devoted 20 or more minutes, the rate of complete or partially complete answers rose to 65.2% (30 out of 46).

As might be expected, the opposite tendency was observed with referrals. When up to 4 minutes were spent with a patron, referrals account for 29.4% of all answers (47 out of 160). When a staff member spent more than 10 minutes with a patron (i.e., the categories of 10–14 minutes; 15–19 minutes; and 20 minutes or more), the referrals fell to 11.2% (19 out of 169), and when more than 20 minutes was devoted to a question, the referral rate was 2.2% (1 out of 46). In phoneback situations, where the staff member might be under less pressure in searching for an answer, the rate of complete or partially complete answers was 62.5%—approximately the same rate as for those questions where the staff member spent more than 20 minutes assisting. In sum, the more time a staff member spends with a patron, the greater the chances that a patron will receive a complete or partially complete answer.

Delivery Method of Questions

Proxies asked their questions either by telephone or in person at a government documents reference area. A total of 163 telephone questions was asked, while 325 questions were asked in person. Figure 4 shows the effect of question delivery method on the type of response received. More complete or partially complete answers were received when questions were delivered in person (45.9%) than by telephone (35.6%), in contrast to McClure and Hernon (1983). On the other hand, more referrals were given to telephone questions (23.9%) than to in-person questions (18.2%). These results are statistically significant ($\chi^2 = 4.68$, $df = 1$, $p < .05$, $\phi_c = .098$). And, as Table 5 shows, the findings from Figure 4 hold true when results are broken down by type of depository library. Telephone questions were answered less successfully than in-person questions in all types of libraries. The greatest divergence occurs in public full depositories, where complete or partially complete answers were given to in-person questions 57.5% of the time, but only 36.8% of the time when asked by telephone. A similar gap exists at academic full depository libraries. Selective depositories showed smaller differences.

FIGURE 4
Responses Received by Method of Question Delivery
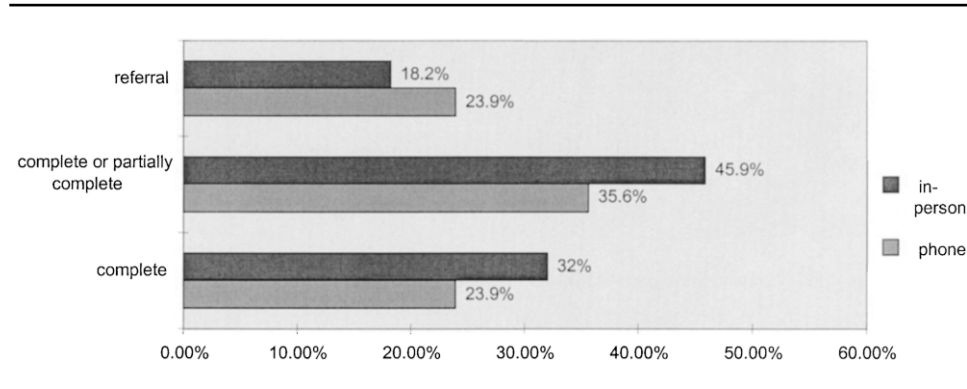
Subject Matter of Questions

In total, proxies asked 324 executive questions and 164 legislative questions. As shown in Table 6, complete or partially complete answers were provided to legislative questions at a statistically significantly higher rate than to executive questions (χ^2 = 24.92, df = 3, p < .01, Cramér's ϕ_c = .226). While legislative questions were completely or partially completely answered by all libraries 48.2% of the time (79 out of 164), executive branch questions received complete or partially complete answers 39.5% of the time (128 out of 324). Moreover, legislative questions were referred at a substantially lesser rate (26.2%) (85 out of 324) than were executive branch questions (7.9%) (13 out of 164).

Whereas selective depositories provide complete or partially complete answers to legislative and executive questions at about the same rate, the difference between the two types of questions is most apparent in public full and academic full depositories. Full depositories provide complete or partially com-

TABLE 5
Method of Question Delivery and Depository Library Types

	Complete or Partially Complete Answers	
	In-person	*Phone*
Academic Full	46/80	19/47
	(57.5%)	(40.4%)
Academic Selective	18/48	6/17
	(37.5%)	(35.3%)
Public Full	23/40	7/19
	(57.5%)	(36.8%)
Public Selective	62/157	26/80
	(39.5%)	(32.5%)

TABLE 6
Comparison of Legislative and Executive Questions

	Complete or Partially Complete Answers	
	Executive	*Legislative*
Academic Full	35/75	30/52
	(46.7%)	(57.7%)
Academic Selective	15/40	9/25
	(37.5%)	(36%)
Public Full	16/38	14/21
	(42.1%)	(66.7%)
Public Selective	62/171	26/66
	(36.3%)	39.4%)

plete answers to legislative branch questions (academic full at 57.7%; public full at 66.7%) at a greater rate than to executive branch questions (academic full at 46.7%; public full at 42.1%).

Retrieval Types

We also wanted to know whether a distinction prevalent in the scholarly literature of librarianship between data-retrieval questions and document-retrieval questions was germane for government-based reference questions. As mentioned above, Katz (1996) defines data-retrieval questions as those in which individuals ask "specific questions and expect answers in the form of data, while document-retrieval queries are those in which patrons "want information, not just simple answers," and this information is "usually in the form of some type of document" (p. 18).

Document-retrieval questions received slightly more complete answers (31.7%) (93 out of 293) than data-retrieval questions (25.6%) (50 out of 195). When complete and partially complete answers are combined, document-retrieval questions scored 45.4% (133 out of 293), and data-retrieval questions scored 37.9% (74 out of 195). Moreover, data-retrieval questions (31.3%) (61 out of 195) are referred more than twice as often as document-retrieval questions (12.6%) (37 out of 293). The above differences are statistically significant ($\chi^2 = 25.86$, $df = 3$, $p < .01$, Cramér's $\phi_c = .230$).

Referrals

In total, 98 questions (20%) were referred to various governmental and nongovernmental institutions (Table 7). Half the referrals (49 questions) were to government departments. Another 7% were to governmental or legislative libraries (7 questions). Proxies were referred to other nongovernmental libraries,

TABLE 7
Referrals

Patron Referred To	Frequency (No. of Times)
Another Government Department	49
Nongovernmental Libraries	28
Nongovernmental Agencies or Commercial Establishments	14
Governmental or Legislative Libraries	7
Total Number of Referrals	98

usually at a university, 29% of the time (28 questions). In addition, 14% of the time they were referred to external nongovernmental agencies or establishments that were not libraries (14 questions).

Of the referrals made to government departments, 65.3% were made by public selective depositories. This should not be surprising given that many public selective libraries do not collect a wide array of government documents. More interesting is the fact that both academic full depositories and public full depositories each referred to government departments at 16.3% despite their holdings of a vast range of official publications. Of the referrals to other nongovernmental libraries, 71.4% of the time such referrals were made by public selective depositories and academic selective depositories.
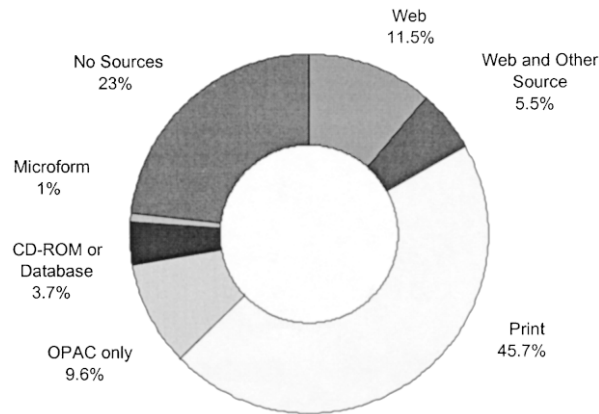
Sources Used

As indicated earlier, all 15 questions could be answered using Web resources. Dolan and Vaughan (1998) report that, by the end of 1996, 89% of depository libraries had Internet access and that, of the 11% that did not have Internet access in December, 1996, some 70% were planning to have such access within one year. When the present study was conducted in December, 1997, it was not unreasonable to suppose that Internet access was available in some 96% of federal depository libraries. Dolan and Vaughan (1998) also report that print sources are used much more frequently in depository libraries than are electronic sources. Therefore, we wanted to determine the extent to which library staff turn to various types of sources to answer patron questions. Figure 5 summarizes source use.

Print-only sources constitute by far the largest single source (45.7%) used to answer proxy questions (223 out of 488 questions). The Web alone was used 11.5% of the time (56 questions), and the Web in combination with another source, 5.5% (27 questions). Thus, in whole or in part, use of the Web hovers around 17% (83 questions). About 23% of the time "no sources" were consulted (112 questions), and in an additional 9.6% of cases (47 questions), the only source used was a library online public access catalogue (OPAC). CD-ROMs or databases were used 3.7% of the time (18 questions), and microforms, just over 1% (5 questions).

FIGURE 5
Distribution of Sources Used to Answer Questions

Of the 112 questions for which "no sources" were used, 55 were in-person questions and 57 were telephone questions—an almost equal division. However, 325 questions were asked in person, while only 163 questions were asked by telephone. Accordingly, "no sources" were used in 34.9% of telephone questions, but only in 16.9% of in-person questions. If the 15 questions are ranked by the number of times "no sources" were used in answering them, three of the top five were telephone questions: lyrics (17); fuels (14); and barley (11). From a different perspective, four of the top five are executive branch questions, and four of the top five are data-retrieval questions.[6] There was a difference among depository libraries in their use of "no sources." On these 112 occasions when proxies indicated that "no sources" were consulted by library personnel, 48.2% of the time this occurred at public selective depositories, 30.4% of the time at academic full depositories, 14.3% of the time at academic selectives, and only 7.1% of the time at public full depositories.

Minor variations were observed in the sources used, depending on the type of depository library. Use of the Web at academic full, academic selective, and public full depository libraries ranges from 21.1 to 25.2%—statistically indistin-

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6   All questions received at least one "no sources" reply. The following is a list, in descending order, of the number of times a particular question received a "no sources" answer. The short name of the question is used. Refer to Table 3 for the full question, as well as for information about whether each question was categorized as being: in-person or telephone; executive or legislative; data-retrieval or document-retrieval. The list is as follows: lyrics (17); fuels (14); photo (12); barley (11); garbage (11); book (10); Africa (7); CRTC (5); Magdal (5); refugee (5); Audgen (4); fish (4); firearms (4); rules (2); crime (1).

guishable rates. Public selective libraries, however, use Web-based sources significantly less—12.2% of the time ($\chi^2 = 22.45$, $df = 12$, $p < .05$, Cramér's $\phi_c = .123$).[7] Use of print sources at public full depositories and public selective depositories is around 53%, while in academic full and selective depositories print use hovers around 40%.

Is there a difference in types of sources used in different regions of Canada? Depository libraries in Ontario, the Atlantic Provinces, and British Columbia make use of the World Wide Web significantly more than depository libraries in Quebec and on the Prairies ($\chi^2 = 51.41$, $df = 20$, $p < .01$, Cramér's $\phi_c = .162$). Depositories in Atlantic Canada make use of the Web at a rate of 22.7% (17 out of 75 questions), those in Ontario use Web resources at a rate of 21.2% (35 out of 165), while those in British Columbia employ the Web 18.9% of the time (10 out of 53 questions). These results are, for all intents and purposes, indistinguishable. In Quebec, however, Web use in depository libraries drops to 13.3% (14 out of 105 questions), and on the Prairies, use of Web resources declines to 7.8% (7 out of 90). Nonetheless, all regions of Canada, except the Atlantic Provinces, use print sources more than twice as much as they use Web-based resources. In Atlantic Canada, print-only sources are used 41.3% of the time (31 out of 75). Depository libraries in the Prairie Provinces use print-only sources at a rate of 55.6% (50 out of 90), more than depository libraries in any other region. Depository libraries in Ontario also have a high rate of print use (53.3%) (88 out of 165).

Were there certain types of questions for which Web sources were more popular than print sources? Figure 6 tracks sources by individual questions. In general, it is apparent that, for most questions, print-only sources were more popular than Web-based sources. A slight trend may nevertheless be discerned. There are four questions in which either Web use was greater than print use or where print and Web sources were used approximately the same: the Hansard question about the Magdalen Islands; the question about a committee report on firearms legislation; the question about the *Alternative Fuels Act*; and the bibliographic question about the price of a government-published book. Three of these four questions deal with legislative branch issues. Relatively high Web use (in comparison with print use) in searching for answers to these questions may indicate that staff members in depository libraries are familiar with the extensive legislatively-based information available on the Canadian Parliamentary Web site. At the same time, library personnel do not appear to be sufficiently familiar with the range of executive branch information that is also available on the Web, since, in nine out of the 10 questions dealing with the executive branch, they employed print sources to a greater extent than they did

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7   This chi-square test and the chi-square test in the next paragraph are calculated using the five major sources used by depository libraries (print; Web-only; Web combined; OPAC; no sources) and a category called "other," which includes database, CD-ROM, and microform sources. These three sources (23 instances in total) were combined due to cell size criteria.

FIGURE 6
**Individual Questions by Print or Web Use**
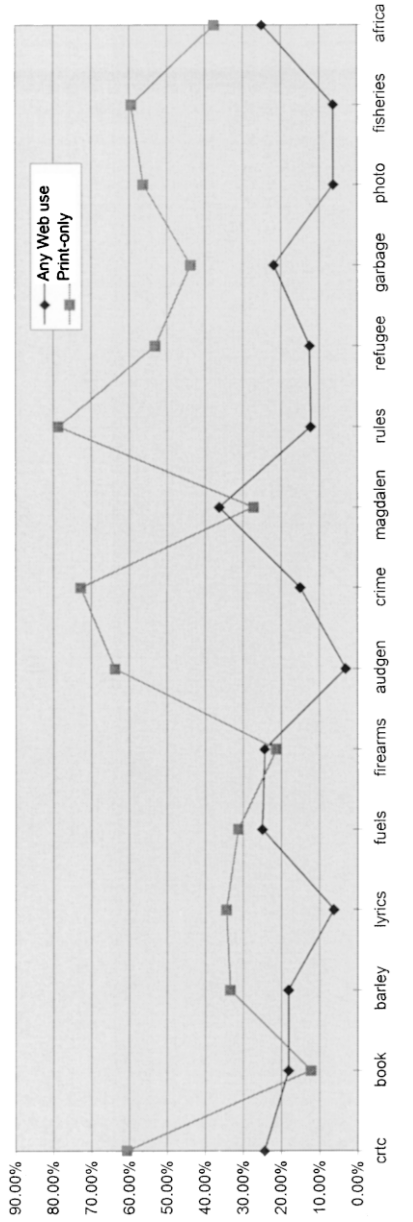
Web sources. For the five legislative branch questions taken as a group, staff used Web sources 24.5% of the time, while for the ten executive branch questions, they employed Web sources 14.7% of the time. Still, print sources were by far the most preferred source for both types of questions. Indeed, use of print sources was more than double that of Web sources for legislative and executive questions.

Depository library personnel clearly favor print sources by a wide margin over Web sources. Such practice may be based on long-standing habit and experience as well as the conviction that complete answers may be found more readily in print sources. Are these two beliefs accurate? Figure 7 shows complete and partially complete answers by type of source used. A good place to begin is with complete answers—perhaps the best indication of the value of individual sources. When print sources alone are used, complete answers are found 39.9% of the time (89 out of 223 questions). When Web sources alone are used, however, complete answers soar to 60.7% (34 out of 56)—an approximately 50% increase. Complete or partially complete answers occur 78.6% of the time (44 out of 56) when Web sources are used alone, while complete or partially complete answers are provided 60.1% of the time when only print sources are employed (134 out of 223).

In sum, Figure 7 shows a step-like progression in efficacy rates. Print is the least effective for achieving either complete or partially complete answers. The second most efficacious results are achieved when the Web is used in combination with another source. Best results are achieved when the Web is used as the sole source for government information retrieval. These differences are most pronounced in public selective libraries and academic full depositories. In public selective depositories, for instance, Web sources, when used alone, led to complete or partially complete answers 84.2% of the time, while print sources produced the same type of answers 52.9% of the time. The difference is more muted in academic full depositories and public full depositories, although still

FIGURE 7
Responses Received by Type of Source
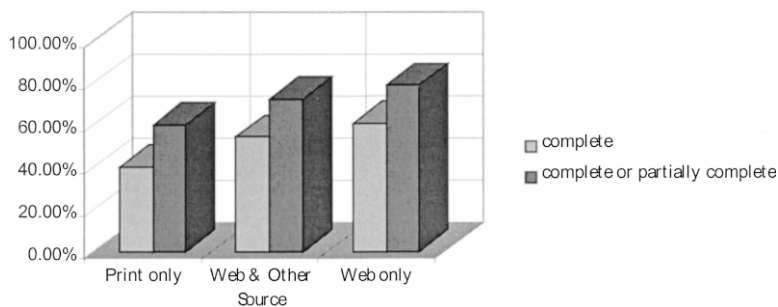
important. Web sources, when used alone, result in 81% complete or partially complete answers in academic full depositories, while print sources provided 70.8% complete or partially complete answers. In public full depositories, Web sources resulted in complete or partially complete answers 75% of the time, while print sources did so 67.7% of the time. Even though the World Wide Web as a storehouse of information and knowledge was still in its infancy in the late 1990s, this study offers some evidence to suggest that it has surpassed print sources as a means of retrieving complete or partially complete answers to government documents reference questions. These results are not inconsistent with Janes and McClure (1999) who, in a study of the success with which "quick fact reference questions" could be answered using freely available Web sites, found that "the people using Web resources performed slightly better" in terms of accuracy than those using print sources (p. 33).

DISCUSSION

The level of service and knowledge suggested by a 29.3% complete accuracy rate or a 42.4% complete/partially complete answer rate is disquieting given the emphasis the DSP places on the depositories' role as the public's center of expertise for finding, accessing, and retrieving federal information. It may be that the complexity and sheer quantity of official documentation from all sources is overwhelming depository libraries. It may also be that depository staff members are not confident enough to move through the labyrinth that many perceive government documents to be. Or it may be that the package provided to depository libraries by the DSP may be lacking in consistency, indexing, and accompanying training material. No text or manual giving guidance in the use of federal documents has been published since the appearance of Olga Bishop's *Canadian Official Publications* in 1981.

In the past decade libraries have been forced to suffer painful budget cuts. Respondents to the survey conducted by Dolan and Vaughan (1998) reported that libraries are suffering from an absence of funding, a dearth of training programs, and a lack of available time for maintaining or improving staff expertise in the area of official publications; in addition, depositories are especially in need of knowledgeable personnel to assist with electronic access. This last point is of particular relevance for the present study.

Full depositories perform at a higher level than selective depositories. Complete answer rates ranged from 39.4% at academic full depositories to 32.2% at public full depositories to 29.2% at academic selectives to 23.2% at public selective depositories. This should not be surprising, given the fact that full depositories have access to the entire range of DSP publications. Moreover, they are typically located in large urban areas or at major universities across the country and have the benefit of staffing and funding levels that are much higher than se-

lective depositories. This latter circumstance suggests that full depositories may either have more specialized government documents reference personnel than selective libraries, more practice in answering questions than selective libraries, or both.

Libraries which had separate government reference areas typically performed better than those with common reference areas. Dolan and Vaughan (1998) report that 29% of depository libraries in Canada have separate government documents collections, while 55% have a mixed arrangement. Whereas only 14.7% have integrated their government holdings into either their main collections or their reference collections, 70 libraries (or 16.1%) have moved to merge their collections since 1986. Although an integrated government documents collection does not preclude the existence of a separate government documents reference area nor is there necessarily a relationship between the organization of a government documents collection and the presence (or absence) of a government documents reference area, the findings presented in Table 4 suggest that, even if the trend to consolidate government documents collections continues, depository libraries should seriously consider retaining separate government documents reference areas. This finding substantiates that of Van De Voorde (1989), who reports a slight decline in the quality of reference service at a single merged area which dispenses both general and government reference service. Rawan and Cox (1995), however, suggest that "the loss of specialization is countered by the gain in awareness of the [government documents] collection by library staff" (p. 261); and Frazer, Boone, McCart, Prince, and Rees (1997) report that merged reference departments continue to be implemented. Still, integration of government reference service into the main reference area may devalue the specialist knowledge that government documents librarians possess. The retention of a separate government documents reference area may serve to maintain and valorize this specialist knowledge; it may also act as a stimulus to the development of higher levels of expertise as specialist librarians continually update and refine their skills.

Legislative questions were typically answered more successfully than those questions defined as pertaining to the executive branch. One reason for this phenomenon may be that legislative questions are more homogeneous than executive branch questions. While the subject matter of legislative questions can be as broad as executive branch questions, the locations in which the answers to legislative questions can be found are limited in number. For instance, once a librarian knows how to find one statute, one bill, or one comment in Hansard, then the answer to any subsequent questions dealing with statutes, bills, or debates will be found in the same location. It should also be noted that the questions themselves often include clear references to appropriate sources, for example, "Where can I find a bill about Topic X?" Executive branch questions, on the other hand, are heterogeneous not only in regard to subject matter, but also in regard to potential locations.

Although academic depositories and public full depositories used Web

sources approximately twice as much as public selective depositories, this study indicates that library personnel turn to print sources more frequently than they do to Web-based resources. Reasons for this may be many. Some library staff may feel that government servers are too slow, that government search engines are ineffective, or that the necessary information is contained in Adobe Acrobat files that are either inaccessible or too large to print. Another reason for this may be the philosophy put forward by Devlin (1997) that the Internet should be chosen as an information source only if the question is unlikely to be answered elsewhere, or if other sources have been unsuccessful, or if a comprehensive search is required. Devlin's approach may be valuable for many general reference questions, but his searching strategy model may not be appropriate for government documents questions. Government information on the Web is usually reliable since it is posted by government departments and agencies themselves. Moreover, Benson (1995) suggests that, if a previously identified credible Internet source has been located, it should be consistently used as an information source. Canadian government documents are readily available on well-established and stable Web-based platforms. Library reference departments may want to consider adopting a service policy stating that, if a question seems to be a government documents question, a staff member should consult Web-based sources early on in the search. More frequent use of the Web at academic and public full depositories may be due to higher bandwidth connections to the Internet, which facilitates speedy access to Web pages. As more public selective depositories become part of a telecommunications infrastructure supporting high bandwidth, their use of Web resources may increase.

There are a number of issues, however, which need to be addressed before library staff make full and complete use of Web resources as a matter of natural course. The authority of electronic sources is one such major concern. Many author departments decree that print versions are the authoritative versions of texts. One government Web site, for instance, clearly states that "In the event of a discrepancy between the electronic version and a hard copy publication, the hard copy will be considered the accurate version." Another site warns that "inadvertent errors can occur for which no responsibility is accepted." In addition, staff have reported important missing elements, especially tables and charts, from electronic copies of publications. In these circumstances, it is logical to expect library staff to turn to print sources before they turn to Web sources until such time as digital signatures become accepted. Authority of information on government Web sites is therefore a serious issue that should be addressed. Another concern is the question of use restrictions on government sites, although some sites allow the downloading of "one copy of the materials on any single computer for your personal, non-commercial home use only."

A number of technical issues surrounding government sites may also inhibit staff members from turning to Web-based sources. For instance, the use of frames and graphics, as well as PDF formats and proprietary software such as FOLIO, are problematic, especially where public service sites have multiple

functions. Reference staff may also feel that search engines are less than adequate, given that some departments still use HARVEST and that other engines only search HTML documents and do not pick up PDF documents. Moreover, some library personnel, having become accustomed to sophisticated Web-site search engines that contain such features as exact phrase, word proximity, date or database limitation, and truncation features, may find government search engines to be lacking in some of these areas.

Many government sites do not contain all-important accompanying metadata, despite the existence of basic standards for Internet publication within the government. Archiving policies are still not yet in place; the result is documents which appear and then disappear. For librarians trained in the integrity and reliable accessibility of information, this circumstance is disquieting. A final issue is that some government Web sites and Web addresses are not stable, resulting in confusion for the library community and much extra work in updating electronic bookmarks.

Dolan and Vaughan (1998) present evidence to suggest that staff preparedness to help patrons with electronic access and competent delivery of electronic government publications is lacking because of the absence of funding, the dearth of training programs, and the lack of time available for acquiring and passing on expertise in dealing with electronic sources of government information. Along the same lines, Ford (1997) notes that serious problems in staffing in some regional U.S. depositories is inhibiting public access to electronic government information. Training of library personnel in electronic sources of government information may be especially crucial, given the fact that use of Web sources to find government information is associated with a better reference efficacy rate, as measured by complete and partially complete answers.

CONCLUSION

The Canadian federal government is moving to implement a plan in which the preferred delivery platform for government information will henceforward be electronically-based through the World Wide Web. One consequence of this will be that the distinction between a full depository library and a selective depository library will disappear. Indeed, all computer-owning individuals will have the same access to publications provided by the federal government as the largest library in the country. However, not everyone will have access to a computer and the Web. Moreover, those individuals who do have such access may not be very proficient at finding their way around this new information medium in their search for specific government publications and data. Depository libraries, therefore, still have an important role to play as intermediaries between government information and the general public, but if, and only if, they are able to provide superior reference service in government publications. And, if they are to offer superior levels of service, one requirement must be in-

creased attention to systematically training staff members in efficiently locating government publications and data.

McClure and Hernon (1983) concluded that there is a strong likelihood that "the individual staff member is the *single most significant factor* affecting the quality of reference service for government documents," and suggested that "concentrating on the skills and competencies of individual staff members may well upgrade the quality of reference service" (p. 111, original emphasis). They called for an increased knowledge of basic and advanced government documents reference sources and "a *program* of education for the documents depository staff, as well as a program that develops learning opportunities for other library staff members" (p. 143, original emphasis). Specifically, they recommended formal programs of study in political science and history, and internships in federal agencies.

More than 15 years later, we make a similar recommendation. To make use of Canadian government Web resources effectively, it is vital that library staff members are fully aware of the structures, functions, and evolution of both the legislative and executive branches of government. Staff members need to know what programs are available and who is responsible for which program in the federal government.[8] In short, library staff should be knowledgeable about who does what and how things work within the many departments, agencies, and other administrative entities of the federal government. Even better service might be provided if library personnel possessed substantial knowledge about what services are offered by which level of government; that is, in the Canadian context, either federal, provincial, or local (municipal and regional), or in the American context, federal, state, and local. Once staff members can readily identify a potential question as falling within a particular governmental realm through their knowledge of "who does what," it may become much easier to identify the electronic site where the desired information may be found. Within the Canadian context, the DSP may be the logical agent to institute such a formal training program.

When all is said and done, the key issue is whether library staff should be satisfied with the accuracy rates described in this study. Hernon and Altman (1998) have suggested that accuracy is a key indicator of overall service quality in the eyes of business executives. To be sure, a library is not a business, yet should library patrons be expected to accept a level of service that they may not necessarily countenance from a business establishment? Moreover, a lack of accuracy and success in answering reference questions may be a leading indicator of other shortcomings in a particular library.

Furthermore, library staff should understand that patrons who may have

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8   It is also important for staff to know the history of departments and changes in ministerial responsibilities. In Canada, various programs and administrative entities may migrate from department to department, depending on political circumstances.

turned to their local public or academic library for help with government information now have alternatives. There are numerous 1-800 and 1-888 numbers in both Canada and the United States that connect directly to government departments, agencies, and help lines. And, as Beamish (1999) reports, many government departments in the United States have instituted programs whereby government officials accept questions, and provide answers, through e-mail. For instance, the Environmental Protection Agency has "two dozen librarians fielding as many as 1,500 such e-mail questions each month, with a typical response time of fewer than five days" (p. D8). Many other departments have electronic messaging departments staffed with specially-trained individuals who provide "precise information, complete with citations and details" in e-mail messages that are "as chipper as a happy-face sticker" (p. D8). Given the existence of these new messaging departments, depository libraries may wish to re-examine all aspects of their government documents reference service to improve accuracy and success rates.[9]

Improvements are vital, for there is still a strong need for government documents reference service at depository libraries. There are at least three reasons. Beamish (1999) reports that many government departments, hoping that users can find the information themselves, do not encourage users to send them e-mail requests. She quotes a high-level official in the Emerging Information Technology Policies division of the General Services Administration as saying that "[t]he ideal Web site is to answer as many questions as possible, so the last option is to send an E-mail which requires a person to intervene and answer a question" (p. D8). However, the sheer complexity of some government Web sites may inhibit information retrieval by untrained users. Thus, the expertise of trained government documents reference personnel will be even more important. Second, many individuals may not want to wait five days, or even longer, to receive certain government information. Again, trained staff at libraries could reduce waiting times. Third, fee-based cross-departmental and cross-agency search services may be on the horizon to deal with the vast and ever-expanding universe of government information (Clausing, 1999). Many people will not be able to afford such services from their homes. Depository libraries, functioning as free or partially subsidized gateways to government sources, will therefore continue to play a significant role in ensuring equitable access to government information for all citizens, no matter their socioeconomic status.

Hernon et al. (1999) point to 16 reasons why libraries and library staff may resist criticisms about their work. Three of the main reasons are that "a focus on improvement implies an initial baseline of *inferior* or *substandard* service," that service quality concepts can only be associated with "commercial service

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9   Although Beamish (1999) focuses exclusively on developments within the United States, it is not improbable that the innovations she mentions will become current in Canada in the near future.

settings," and that libraries "need not be concerned about competition" (pp. 13–14, original emphasis). As discussed above, the last point no longer holds for libraries providing government information. The challenge for government documents reference staff at depository libraries in Canada is therefore to see themselves as part of a competitive information-provision marketplace. To this end, studies comparing the accuracy and service levels of depository libraries, government telephone help centers, and e-mail messaging departments should be undertaken on a regular basis. Hernon et al. (1999) endorse the general practice of comparative benchmarking, suggesting, for example, that interlibrary loan departments attempt to match statewide "best practices" or "even commercial delivery services such as United Parcel Service (UPS)" (p. 12). Just as depository libraries should be encouraged to meet performance standards, they should also be open to guaranteeing such standards as part of their service commitment to patrons. The findings of the present study lend support to McClure and Hernon's (1983) call for a "certification process whereby [depository] libraries must show evidence of meeting specific criteria" and where the individual in charge of the government documents collection must also meet "specific *performance-related* criteria to direct the collection" (p. 160, original emphasis). It may even be worthwhile to extend the certification process to all staff who regularly provide government documents reference service.

Certainly, such a recommendation is controversial, yet the increased complexity of the government information universe, combined with the low accuracy levels found in this study, calls for a serious re-appraisal of government documents reference delivery in depositories. Such a re-appraisal seems all the more urgent, given that service levels at depository libraries have not improved since McClure and Hernon (1983). While McClure and Hernon (1983) investigated the situation in two regions of the United States, the present study focused on a wide range of depository libraries across Canada. Yet, the findings of these two studies are similar. Providing government information to the public, no matter the country, is an arduous task. Indeed, the task will become even more difficult in the future, with the creation of supra-national organizations that impact directly on national social, economic, and political life. For instance, rulings of the World Trade Organization, as well as the political and economic compromises that will have to be reached because of these rulings, will assume an increasingly prominent place in the daily lives of large corporations, small businesses, and ordinary citizens.[10] In another example, courts in the United States are increasingly accepting jurisdiction over cases, filed under the *Alien Torts Claim Act*, that employ international human rights statutes and international environmental accords such as the Rio Declaration.[11] Although some attention has always been paid to international documents in depository

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10   See, for example: Moberg (1999) and Vittala (1999).
11   See Press (1999).

libraries, the tendency has been to treat them as a specialized, often separate, component of the collection. Now, however, many international documents are, in effect, becoming national and local documents. Accordingly, depository reference staff have another level of information to master. More than ever, such circumstances warrant a concerted effort by depository libraries to improve government documents reference service in the 21st century.

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