Bar-Ilan University

Interlibrary Loans and Academic Research:
The Differences Between Users and Non-Users and Factors Affecting Satisfaction with Outcomes

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ABSTRACT

Today's research climate is characterized primarily by information-seeking via the Internet, particularly during the early stages of research due to the ease and speed of access to results compared to library databases and print sources. In addition, the wide variety and extensive amount of information now accessible via the Internet and library databases exposes researchers to more and more citations and abstracts but not always to the documents themselves. Despite the increasing numbers of electronic documents freely available via the Internet, ILL requests are still requested in high demand in most academic libraries due to the continual growth in the numbers of books and articles being published, which has resulted in additional requests for information which no one library can meet entirely from its own collection.

The purpose of the current study was to investigate whether there were differences between users and non-users of ILL and whether users perceived certain factors to contribute to satisfactory ILL outcomes. The first research question investigated the differences between users and non-users of ILL according to: frequency of library use, style of information-seeking, demographics - age, gender and mother-tongue, and academic profile - seniority, tenure/promotion status, productivity level, and academic discipline. The second research question examined the extent to which the perceived benefits of the following factors were related to satisfaction with ILL outcomes: consultation of secondary information sources, choosing indicative/informative titles, receiving reference assistance, and achieving a timely delivery.

The study employed the survey method in the form of a specially-compiled web questionnaire which was distributed by e-mail to a sample of faculty and doctoral students at two Israeli research institutions. In total, 330 questionnaires were distributed at the University of Haifa and 1090 questionnaires were distributed at the Technion, producing a response rate of 37% at the University and 18% at the Technion.

The two most significant findings of the current study were that: (a) the profile of an ILL user is someone who frequently uses the library's services and resources, who has a deep and thorough style of information-seeking, and who is a senior, productive, humanities, faculty member, and (b) ILL users who perceived consulting secondary information sources and receiving reference assistance to be beneficial to ILL outcomes were likely to achieve satisfactory ILL outcomes which exceed their expectations and which were incorporated into their research. In addition, the study uncovered several reasons for non-use of ILL such as: a great deal of scholarly information in the sciences and technology was now freely available via the Internet, rendering ILL and libraries redundant in the eyes of researchers, and the preference among humanities' scholars for purchasing personal copies of books which they could keep in their possession for future reference, unlike items obtained via ILL.

The findings of the current study contribute to our understanding of the profile of the user and non-user of ILL, and the ways of helping ILL users to achieve satisfactory ILL outcomes. Moreover, they are applicable to current library and information science practice, in that awareness of the profile of ILL users and non-users may enable librarians to identify potential users of ILL and to encourage them to become users. In addition, awareness of the importance of reference assistance and the consultation of secondary

information sources as beneficial to ILL outcomes may bring about an increase in referrals and use of secondary sources prior to requesting ILL.

Despite unsupportive predictions about the future of ILL due to the widespread use of electronic journals in academia, the current study shows that it is unlikely that ILL will be eliminated from library use in the near future. Although in the sciences document delivery has declined, in the humanities book borrowing has actually increased, particularly for esoteric, non-English language items that can only be located with the professional knowledge and experience of ILL librarians. The main contribution of the current study is its validation of ILL as an essential service for serious academic researchers.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Problem

Today's research climate is characterized primarily by information-seeking via the Internet. Although embraced initially by researchers in the sciences, mathematics and medicine (Dillon & Hahn, 2002; Hiller, 2002; Kidd, 2002; Rowley, 2001; Tenner & Yang, 1999; Voorbij, 1999), the Internet is now used extensively by researchers from all disciplines for searching, downloading and corresponding (Lazinger, Bar-Ilan, & Peritz, 1997). In particular, Internet search engines are utilized during the early stages of research due to the ease and speed of access to results compared to library databases and print sources. The arduous route to obtaining an article via a library database as opposed to via an Internet search engine has been summarized by Shuttle (2004): the user must access the library web site, choose the databases option, choose the requested discipline, choose a specific database, search for a subject - sometimes only by means of a thesaurus -, locate a suitable article, establish whether the library holds the relevant journal, locate its classification number on the shelf, collect the journal volume and photocopy from it or request it via interlibrary loan (ILL) if it is not held by the library. In contrast, using an Internet search engine simply requires accessing the website, entering the relevant keywords, choosing from the results received and printing them out. *Google*'s popularity among academics has risen since the launching of *Google Scholar* in 2005 which, according to Rohde (2005), allows users to search for scholarly literature such as peer-reviewed papers, theses, books, preprints, abstracts and technical reports and access information from resources including academic publishers, universities, professional societies and preprint repositories.

However, despite the simplicity of Internet search engines compared to library databases, faculty still depend largely on the library's electronic and print resources for their research due to the predominance of non peer-reviewed and non-edited articles on the Internet and overall lack of quality control. Moreover, many scholars use Internet search engines only during the preliminary stages of research when they are establishing the need for a certain issue to be studied (Herring, 2001). A recent study of 100 graduate students at Carnegie Melon University found that 77% of graduate students used the Internet as their primary method of searching, followed by library resources (George et al., 2006). And a study of 137 faculty members at East Michigan University (2007) found that 85% relied on Internet search engines, such as *Google*, very frequently or frequently, while only 77% relied on the library's online databases frequently. The tendency of researchers to begin their information-seeking with electronic resources was also underscored by Friedlander (2002) who found that 90% of faculty members at more than 3,000 American universities began their research by consulting electronic resources and then turned to traditional print sources.

The fact that students and faculty have adopted *Google* and the Internet so readily may be a result of their dissatisfaction with the multitude of different interfaces offered by libraries. To overcome this problem, libraries have begun introducing federated databases which allow users to search multiple databases simultaneously using only one interface. However, although federated databases simplify searching, it also takes time to become accustomed to them, and the large number of results they produce may cause information overload (Terrell, 2004), i.e., when the amount of information available exceeds the ability to process it (Klapp, 1982).

The problem of information overload is compounded by the continuous increase in the number of print and electronic items being published each year which, according to current estimates, stands at a 30% annual increase (Lyman & Varian, 2003). This phenomenon can be illustrated by the speed at which new items appear in the database *Chemical Abstracts.* Since its inception in 1907, it took 30 years to publish one million citations, 16 years to publish two million, and 12 years to publish four million. Currently, *Chemical Abstracts* has 23 million abstracts (CAS, 2005) with about 14,000 records added every week and approximately 680,000 new documents abstracted every year (Shubha, 2001). Furthermore, the huge amount of information now accessible via the Internet and library databases exposes researchers to more and more citations and abstracts but not always to the documents themselves. Unless the full-text is freely available on the Internet or the library has a subscription to the relevant journal, researchers still need to purchase the desired documents or request them via ILL.

1.2 High Demand for ILL

Originally designed to obtain esoteric items for the specialist researcher, ILL is now an essential service for the entire academic community whereby articles and books not held by the local library are obtained from other libraries and commercial document delivery suppliers for a fee. Despite the increasing numbers of electronic documents freely available via the Internet, ILL requesting is still in high demand in most academic libraries (Kyrillidou & Young, 2006) due to the continual growth in the numbers of books and articles being published resulting in increased demands for information. Moreover, high journal prices, together with widespread canceling of print journal subscriptions caused by dwindling library budgets (Swan, Needham,

Probets, & Muir, 2004), and the growth of new disciplines and multi-disciplinary research has also contributed to an upward trend in ILL requesting (Jackson, 2004).

In addition to increased demand, technological developments have enabled swift supply of articles to users' desktops and management software has allowed librarians to process ILL requests more quickly and efficiently than in the past, contributing to increased user confidence and satisfaction with ILL services (Perrault & Arseneau, 1995) and as a result increased use. A recent benchmarking study in Australian academic libraries showed that user satisfaction with ILL services was as high as 95% (Ruthven & Magnay, 2001).

In the last three decades, ILL traffic has witnessed tremendous growth in American academic libraries. One study showed that between 1981 and 1993, ILL requesting in American research libraries grew by 58% (Prabha, 1995) and, in another study, that between 1986 and 1995 ILL requesting in North American research and college libraries increased by 116% (Jackson, 1998). Similarly, statistics from Virginia Tech indicate that between 1997 and 2001, ILL requesting grew by 85% (Kriz, 2001). Moreover, among the 123 members of the Association of Research Libraries there was an increase from 3 million borrowing requests and 5.5 million lending requests in 2001-02 (Kyrillidou & Young, 2003, p. 47) to 3.3 million borrowing requests and 5.6 million lending requests in 2004-05 (Kyrillidou & Young, 2006, p. 59) and 70 libraries requested more than 20,000 items from other libraries in 2005-06 (ARL, 2007).

Increased ILL requesting has also occurred in some Israeli libraries where the present study took place. At the University of Haifa, statistics show that between 1997 and 2007 ILL requesting grew by over 100%. Thus, it would seem that the worldwide

growth of ILL that began in the 1990s does not show any signs of subsiding and the demand for ILL in academic libraries will continue to grow in the near future.

1.3 Use and Non-Use of ILL in Academia

In every academic institution only a certain percentage of researchers actually use ILL. Most academic researchers will inevitably need ILL at some point in their career, yet some, for various reasons, never use this service. Several studies show that many faculty and doctoral students at American and Israeli academic institutions do not use ILL at all. Data from the University of Haifa show that 87% of faculty and 83% of doctoral students were non-users of ILL in 2006. However, other studies show the rate of non-use to be lower. A recent study at East Michigan University (2007) showed that 29% of faculty were non-users of ILL and a study by George et al.'s (2006) at Carnegie Mellon University found that 42% of doctoral students were non-users of ILL. Earlier studies showed higher figures: Shoham's (1998) study in Israel found that 40% of faculty at two Israeli universities were non-users of ILL, Kinnucan's (1993) study at three Ohio universities revealed that 47% of faculty were non-users of ILL, and Link et al.'s (1984) study at Michigan State University found 39% of faculty were non-users of ILL.

The widespread use of electronic journals and access to information on the Internet since the late 1990s may partially explain why faculty and doctoral students in some disciplines are non-users of ILL and why others use ILL in a minimal or limited manner, but it does not explain several other factors connected to non-use. Although some non-users of ILL may receive articles from channels such as full-text databases, professional sites, colleagues, Internet forums and discussion groups, others may be compromising the quality of their research by managing without essential sources.

1.4 Factors Contributing to Use and Non-Use of ILL

Traditionally, the amount of use and non-use of ILL has been attributed to four main factors: (a) the size of the local library collection, (b) the extent to which potential users perceive ILL as inconvenient, (c) whether funding is available for ILL requesting, and (d) awareness of the existence of ILL services. Several studies have shown that patrons request ILL less in libraries with large collections (Henderson, 2000; Paustian, 1981; Porat & Shoham, 2004) as their needs are better met by the local collection. Moreover, the perceived inconvenience of ILL causes limited or non-use of ILL (Stolt, Weaver-Meyers, & Murphy, 1995), as does the cost of ILL which deters use, particularly among doctoral students who may not have funding for ILL (Kinnucan, 1993; Perrault & Arseneau, 1995). Finally, non-awareness of library services in general is related to non-use of ILL (George et al., 2006; Sridhar, 1994).

Use and non-use of ILL is not only related to external factors such as collection size, perceived inconvenience, availability of funding, and awareness but it may also be connected to personal factors such as the frequency of overall library use, style of information-seeking, demographics such as age, gender and mother-tongue, and academic profile such as seniority, tenure/promotion status, productivity levels and academic discipline.

1.4.1 Frequency of Library Use

The first factor that was expected to differentiate between users and non-users of ILL was the frequency of their library use. Students and faculty who regularly use the library's print and digital services are also likely to use ILL. Two theories show how frequency of library use may cause additional use of library services: the first is the *Matthew Effect* which was coined by the sociologist Robert K. Merton (1968) and refers to the fact that success breeds success, a phenomenon which is more

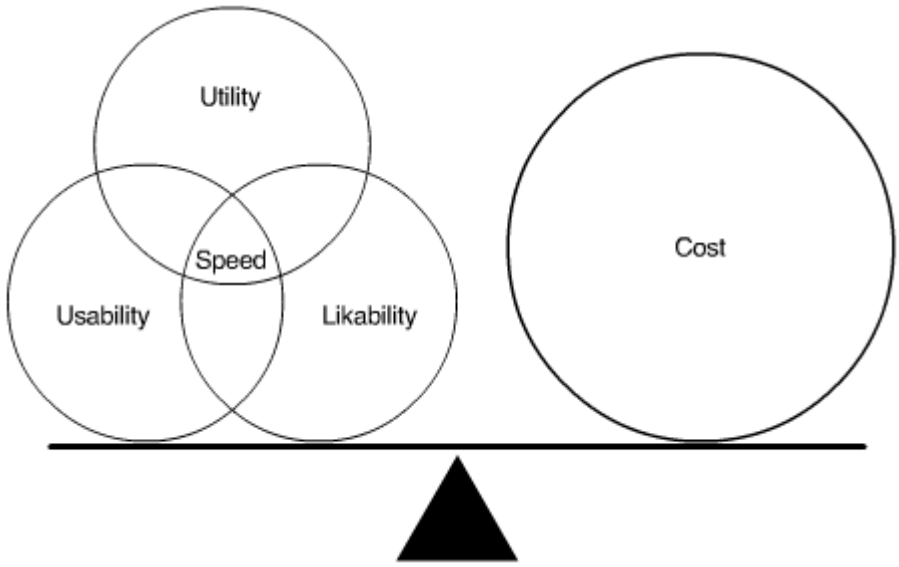
commonly-known in the field of LIS as *Willingness to Return* (Durrance, 1995), i.e., the tendency of people who have had successful experiences in libraries to use them again. The second theory is the *Pareto Principle* (Pareto, 1901) which states that for many incidents, 80% of the consequences stem from 20% of the causes, also known in the LIS field as the *80/20 Rule* (Trueswell, 1969), i.e., 20% of users generate 80% of library use, and as the *Law of the Vital Few* (Stephens & Juran, 2005). Both these theories suggest that frequent users of libraries are likely to continue, or broaden, their level of library use.

Despite the rise in Internet usage among the academic community, (Tenopir, Hitchcock, & Pillow, 2003), electronic and print library resources are still considered by most students and researchers to be of higher quality than information freely available on the Internet (George et al., 2006). Therefore, it seems highly probable that students and researchers, who frequently use library resources both in person and remotely, will also use ILL more than people who use the library resources infrequently.

1.4.2 Style of Information-Seeking

The second factor that was expected to differentiate between users and non-users of ILL was style of information-seeking. Recent research has shown that some people seek information in a comprehensive or deep manner while others have a more superficial or surface approach to searching for information (Heinstrom, 2003). The superficial approach has also been observed by Zipf (1949) in his *Principle of Least Effort,* or the human tendency to minimize the overall work associated with an activity, and by Simon(1956) who coined the word *satisficing* to define how people tend to suffice with the first suitable piece of information that is received, thereby minimizing the effort needed to obtain the information.

Lack of willingness to invest effort in information-seeking is often accompanied by a lack of patience to wait to receive a response from computerized systems causing relevant items to be forfeited. Shackel's *Acceptability Paradigm* (Shackel, 1959, 1991) holds that if all other factors are comparable, speed of access will be the most significant factor in a person's decision to accept a web-based document. Figure 1 below illustrates the *Acceptability Paradigm* which shows the tradeoff between the perceived usefulness, perceived ease of use and attitude about using the system weighed up against the financial and social cost (King, 2003, p. 6). King adds that if a response is not received within eight seconds, most people will forfeit the search even if all other factors are acceptable.



Note. Reprinted from *Speed Up Your Site* (p. 6), by A. B. S. King, 2003, Indianapolis, IN: New Riders. Copyright 2003 by New Riders

Figure 1. Shackel's *Acceptability Paradigm*

On the other hand, some people may be more diligent and thorough in their information-seeking and may be intrinsically-motivated, possessing "the sacred spark of academic research… devot[ing] countless hours to their research projects, even if they are not rewarded for their efforts with prestige or money" (Kyvik, 1990, p. 37).

It seems likely that conscientious researchers, who are willing to invest time and effort in their information-seeking, will also be more inclined to request ILL than those who tend to *satisfice* and reject documents that are not available within eight seconds.

1.4.3 Demographics

The third factor that was expected to differentiate between users and non-users of ILL was demographics such as age, gender and mother-tongue. Age has been shown to affect information-seeking and library use in that younger people tended to invest less time and effort in information-seeking than older people (Agosto, 2002; Fidel et al., 1999). In addition, academics under 40 years of age tend to use electronic sources, that require less effort than library sources, four times more than academics over the age of 40 (Tomney & Burton, 1998). Gender and mother-tongue have also been found to affect library use in that males and non-native speakers tend to use the library more than females and native speakers (Jiao & Onwuegbuzie, 1997). As ILL requesting involves time and effort, it seems likely that older, Hebrew-speaking males may use ILL more than younger, Hebrew-speaking females.

1.4.4 Academic Profile

The fourth factor that was expected to account for differences between users and non-users of ILL is academic profile such as: seniority, tenure/promotion status, productive level, and main academic discipline. Assuming senior and tenured researchers are also older than junior non-tenured researchers, the relationship of seniority and tenure with use/non-use of ILL is likely to be similar to the relationship with age, i.e. senior and tenured researchers probably use ILL more than junior and non-tenured researchers.

With respect to productivity level, there is some evidence that productivity may be associated with use of ILL. Very productive researchers who read prolifically and have sufficient access to literature (Ramesh-Babu & Singh, 1998) are also more likely than less productive researchers to use the library and ILL (Sridhar, 1994), as are writers of books who are attempting to show their expertise in a subject to a wide audience (Tien, 2000).

Many studies have shown that academic discipline affects research methods, library use and electronic journal use (Biglan, 1973; Herman, 2005; Hiller, 2002; Lazinger et al., 1997). Recent research on academic disciplines and library use have noted that scientists frequently obtain articles and pre-prints from the Internet as well as e-mails from colleagues, forums and discussion groups reducing the need for ILL, whereas humanists generally seek esoteric and primary texts and frequently request books via ILL or make personal visits to libraries (George et al., 2006; Shoham, 1998).

1.5 Uniqueness of ILL

ILL requesting comprises a unique facet of the information-seeking process in that users of ILL are required to make two sets of decisions regarding a potentially useful item. Not only must they evaluate whether an article or book located in a library database or on the Internet is relevant to the research being conducted, but also whether he/she is willing to pay and wait for it to arrive by ILL if it is unavailable locally. Studies on how users select items in electronic and non-electronic environments show that they evaluate content and make relevance judgments (Fitzgerald & Galloway, 2001; Wang & White, 1995) based on two main factors: (a) the apparent relevance of the topic, and (b) the perceived complexity of the style and content of the document. Although the same process applies when requesting ILL,

library users' expectations of achieving a satisfactory outcome may be higher than with downloaded or photocopied items because of the cost and inevitable delay of ILL.

1.6 Factors Contributing to Satisfaction with ILL Outcomes

As the main objective of ILL is to provide satisfactory, i.e., relevant and useful, information that would not otherwise be obtained, it is vital that users and librarians do the utmost to obtain items that fulfill these criteria. Some of the factors that were expected to contribute to satisfaction with ILL requests were: the user's perceptions about: (a) consulting secondary information sources, such as abstracts and citation indexes, prior to requesting ILL, (b) choosing titles that provide information about the intention, method or results of the research, (c) receiving reference librarian assistance prior to requesting ILL, and (d) achieving timely deliveries which enable them to incorporate the items into their research projects.

1.6.1 Consultation of Secondary Information Sources

The first factor that was expected to contribute to satisfactory ILL outcomes was whether the researcher perceived the consultation of formal information sources, such as abstracts, tables of contents, journal ranking indexes, citation indexes, and guides to academic institutions and faculty members, as beneficial to ILL outcomes.

Stone's (1983) study at the University of Sheffield showed that most scholars did not consult abstracts or citation indexes prior to requesting ILL which reduced the effectiveness of their ILL outcomes. As most researchers now use online databases of indexes and abstracts, in their literature searches (Tenopir et al., 2003), they are more likely to have read an abstract prior to requesting ILL than when searching printed indexes and are therefore more likely to achieve satisfactory ILL outcomes.

1.6.2 Indicative/Informative Titles

The second factor that was expected to contribute to satisfactory ILL outcomes was whether a user of ILL chooses a document whose title is indicative, i.e., reports the main intentions of the research, or informative, i.e., reports the design or main results of the research. Papers whose titles "summarize the main idea of the paper simply…as a concise statement of the main topic [and] identify the actual variables or theoretical issues under investigation and the relationship between them" (APA, 2001, p. 10-11) are more likely to be relevant and useful to a researcher when downloaded, photocopied or requested via ILL than titles that are misleading, catchy or metaphoric.

1.6.3 Reference Librarian Assistance

The third factor that was expected to contribute to satisfactory ILL outcomes was whether a user of ILL requested and received reference librarian assistance prior to requesting ILL. The reference interview, i.e., "the interpersonal communication that occurs between a reference librarian and a library user to determine the person's specific information need" (Reitz, 2004), is highly-valued among academics, and students and faculty who receive librarian assistance frequently consider the information they receive to be more helpful and useful than the information they could have obtained on their own (Harless & Allen, 1999; Jacoby & O'Brien, 2005; Saxton & Richardson, 2002). As both students and faculty recognize the value of reference assistance and believe that it enhances their information-seeking, it seems likely that ILL requests that originate with a reference interview will result in more satisfactory outcomes than ILL requests that do not.

1.6.4 Timely Delivery

The fourth factor that was expected to contribute to satisfactory ILL outcomes was timely delivery. Although speedy delivery, i.e., receiving an item within two or three days of requesting it, is often assumed to affect satisfaction with ILL outcomes, timely delivery, i.e., receiving an item "in time to be useful" (Stein, 1999, p. 76) may actually be more influential than speedy delivery on satisfaction with ILL outcomes. In a survey of ILL services at Carnegie Mellon University Stein reported that "faculty and graduate students in the humanities disciplines … were alike in valuing timeliness over speed (p. 78). Further, the anticipation of receiving items at an inappropriate time may actually stifle research. In his discussion of collection development, Metz (1980) pointed out that inadequate access to information may "result in potential research projects, in their fertile but tentative and early stages, being deferred or, worse, abandoned" (p. 29). In other words, some researchers may compromise the quality of their research by not pursuing the ILL option because of the apprehension about not receiving an item in a timely manner. It seems likely then, that receiving a document in a timely manner may be just as influential as speedy delivery on satisfaction with ILL outcomes.

1.7 Summary

Faculty and doctoral students seek academic information both from the Internet and from libraries. Despite widespread acknowledgement of the limitations of the Internet for academic purposes due to the abundance of irrelevant material of inferior quality, faculty and doctoral students are increasingly using Internet search engines during the preliminary stages of research and traditional and electronic library resources during the subsequent stages (George et al., 2006). However, neither Internet search engines nor library resources meet all their information needs. Due to

widespread journal cancellations, diminishing library budgets, and huge amounts of newly published information, faculty and doctoral students frequently use ILL to supplement locally-available material. In order for ILL to serve researchers satisfactorily and prevent time-wasting and the receipt of low-quality or unwanted items, it is essential that librarians provide easy access to high quality tools so that researchers can evaluate items prior to requesting them via ILL.

The present study assessed the differences between users and non-users of ILL based on frequency of library use, style of information-seeking, demographics and academic profile. In addition, it investigated whether there was a relationship between the perceived benefits of consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery on satisfaction with ILL outcomes.

1.8 Problem Statement

The current study addressed the problem of why some researchers do not use ILL even though many essential documents they need are not immediately available. It also highlighted the importance of performing high level research when access to potentially relevant and useful information is not immediately available. Given the abundance of new information being published and the constant dwindling of library budgets, and despite increasing availability of web-based information, most researchers need resources beyond those in their own library or on the Internet. In order to ensure the provision of the required information in a timely fashion, library services such as ILL are essential. Bearing in mind that ILL requesting is not perceived by many researchers as a convenient substitute to the Internet or to downloading from library databases and, as it inevitably involves both delay and cost, it is necessary to consider ways of ensuring satisfaction with ILL outcomes.

Previous research on ILL has generally emphasized service quality (Nitecki, 1995; Stone, 1984), the effects of electronic journal usage on ILL requesting (Calvert, 2000; Egan, 2005), the implementation of ILL management systems (Kriz, Glover, & Ford, 1998; Porat, 2001) and the relationship between ILL and collection development (K. J. Anderson et al., 2003; Byrd, Thomas, & Hughes, 1982; Knievel, Wicht, & Connaway, 2006). The few studies emphasizing users of ILL have measured satisfaction with ILL services (Perrault & Arseneau, 1995; Stein, 1999; Weaver-Meyers & Stolt, 1996; Yang, 2004) and not satisfaction with the outcome of ILL requests or the differences between users and non-users. Thus, the current research aimed to explore the differences between users and non-users of ILL in an academic setting and to examine whether the perceived benefits of consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery were related to satisfaction with ILL outcomes that are relevant and useful and meet user information needs.

CHAPTER TWO: LITERATURE REVIEW

The following literature review examines the relevant literature in the following fields to form the theoretical framework for the current study: (a) theories on use and non-use of library resources and services, (b) theories of information-seeking, decision-making and information evaluation, and (c) theories of satisfaction.

2.1 Use and Non-Use of Library Resources and Services

2.1.1 Changing Definition of Library Use

The last two decades have seen a transformation in libraries from providing print-based to electronic-based collections bringing about a new definition of library use. Instead of users coming to the library to borrow books or photocopy articles, students and faculty are now able to use the library's electronic resources remotely without leaving their home or office.

Several recent studies have focused on the effects of familiarity with digital resources on library use. Lisa Covi (1999) analyzed the use of print and electronic materials by academic researchers in four disciplines at eight US research universities. She found that the most important factor affecting digital library use was material mastery which she defined as the "possession of skilled ways of working with materials from a body of knowledge within specialized work worlds" (p. 294). She differentiated between (a) *general use skills* such as basic skills for computer and library use, system-specific searching skills and general search strategies, and (b) *material mastery skills* such as disciplinary search strategy, disciplinary materials selection and field integration. She concluded that there were significant differences in material mastery among the four disciplines and that there were also differences in the amount of electronic library use among disciplines and within disciplines.

Similarly, a study on information-seeking on the Internet at six Dutch universities by Voorbij (1999) which focused on the reasons for non-use of the Internet reported that the main reason for non-use of the Internet was lack of skills followed by lack of adequate access to Internet facilities. Studies on student library use have reached similar conclusions. A study by Vondracek (2007) on 95 undergraduate who were infrequent or non-users of Oregon State University library showed that the perceived convenience and ease of use of library resources and services, especially new ones, was the main factor affecting library use. One student stated “the library’s web site [was] too complex to navigate easily and [I] prefer to use Google [to the library if I] only need to conduct a single search” (p. 289).

In addition, a study by Simmonds & Andaleeb (2001) at three academic libraries in Pennsylvania, reported that one of the main factors affecting library use was the degree of familiarity with the library system. They found that the library was in competition with the easy-to-use Internet, especially Google, and that “the use of academic libraries was influenced most by a user’s perceived familiarity with the library and its resources [followed by] the perceived quality of the library’s resources… and tangibles such as a clean and visually appealing library” (Simmonds & Andaleeb, 2001, p. 630-633). The above studies indicate that library use has shifted from predominantly book borrowing and article photocopying within the library to locating and downloading electronic items made available via the library, from a user’s home or office. Moreover, frequency of use is determined by the perceived convenience of the resources together with the degree to which a user is skilled and familiar with them.

2.1.2 Non-Use of Libraries

A substantial body of research on library use and users exists and has been critically reviewed by Wilson (2000), yet only a handful of studies has focused on why some people, who are entitled to use libraries, do not use them at all or under-use them (Brick, 1999; Cannon, 1990; Julien, 1999; Klintoe, 1977; Link et al., 1984; McCarthy, 1994; New York Library Association, 1970; Sridhar, 1994; Zhang, 1987).

One of the most comprehensive studies on non-use of libraries was carried out by Sridhar (1994) who studied 734 mathematicians, scientists, and engineers at a special library in Bangalore, India. He defined a non-user as "someone who has the right to use a library but he does not do so over a specific period" (p. 4). He found that although 12% were absolute non-users, another 40% were marginal users in that they used some of the library's services. Of all the services studied by Sridhar's, the least used was ILL with only 5% of respondents having used it. A possible reason suggested by Sridhar was that using ILL was cumbersome and that *Mooer's Law* that "an information retrieval system will tend not to be used whenever it is more painful and problematic for a person to have information than for him not to have it" (Mooer, 1996, p. 22) may play a role. In addition, his findings showed a very strong correlation between productivity and library use. He found that a high grade on his *Professional Activities and Achievements Index,* which consists of delivering lectures, attending conferences, participating on editorial committees and publishing articles and books, went hand in hand with use of library resources and services. Sridhar also suggested that ILL will not be used unless users are already familiar with other library services. He claimed that "users do not reach advanced information services, such as ILL, without going through rudimentary services like lending and in-house use" (Sridhar, 1994, p. 21).

A study by Brick (1999) investigated the perceptions of 42 library managers' on the reasons for infrequent use of business libraries in the UK. She checked why non-users, i.e., "people who need information in the course of their research and have a staffed library available to them but do not use it, under use it or use it inefficiently" (p. 195). Her findings suggested that poor library image and lack of awareness of available services were the main reasons for infrequent or non-use. Other reasons for non-use were that potential users were "too busy [to] admit they need information but feel they can manage without it; and … believe that their own subject knowledge is sufficient" (p. 196).

Lack of awareness of library resources and services was also found to affect library use in George et al.'s (2006) recent study on the use of information among 100 graduate students at Carnegie Mellon University which suggested that one of the main reasons for under- and non-use of the library was "a lack of knowledge of existing services or resources … and a confusing library website" (p. 22). The above studies suggest that the main reasons for under- and non-use of special and academic library services may be a combination of an unwillingness to deal with complicated library systems and a lack of awareness of specific services.

2.1.3 Use and Non-Use of ILL

While research on non-use of libraries is minimal, research on non-use of ILL is virtually non-existent. Two studies on satisfaction with library services suggest that the reasons for under-use and non-use of ILL may be different from the reasons for general library non-use. Whereas the most common reasons for under-use and non-use of libraries may be lack of familiarity with the resources (Covi, 1999) and lack of awareness of the services (George et al., 2006), the most common reasons for under-

use and non-use of ILL seems to be the cost and, to a lesser extent, delay and inconvenience of ordering.

A study by Kinnucan (1993) on the demand for ILL in academic settings among 79 faculty members and graduate students at three Ohio universities, found that cost was the biggest deterrent to using ILL and that delay and perceived inconvenience had minimum impact.

Similarly, a study by Perrault & Arseneau (1995) of 152 faculty and graduate students from all disciplines who had used ILL services at Louisiana State University also found that cost, especially among graduate students, was the most influential factor in satisfaction, and therefore subsequent use of ILL. Like Kinnucan, they found that users of ILL were not overly-concerned with delivery time, and that 36% of faculty and 45% of doctoral students considered a delivery time of two weeks acceptable.

Another study by Weaver-Meyers & Stolt's (1996) checked patron perceptions of ILL services based on 200 ILL requests at 11 Greater Midwest Research Libraries Consortium libraries. They found that in addition to cost, the convenient placement of ILL requests was also a significant factor in patron satisfaction, and that the widespread availability of electronic order forms and other non-mediated methods of ordering had virtually eliminated the inconvenience previously associated with ILL requesting.

An additional factor that would seem to affect use and non-use of ILL is style of information-seeking. Jacobs & Morris'(1999) fieldwork as part of the FIDDO (Focused Investigation of Document Delivery Options) project on the current practices of ILL in UK academic libraries maintained that use of ILL is associated with a more comprehensive and thorough style of information-seeking, suggesting

that there may be a relationship between style of information-seeking and use and non-use of ILL.

2.1.3.1 Demographics and Use/Non-Use of ILL

Studies have shown that age, gender and mother-tongue affect library use. Thayer & Ray's (2006) study of the online communication preferences among 174 adults in U.S. provided confirmation for the widely-held belief that younger people use the Internet more than older people. In addition, Tomney & Burton (1998) demonstrated, in their study on 147 academic staff from five faculties at a British university, that 56% of faculty under 40 used, cited and published in electronic journals, compared to 14% of faculty over the age of 40. And Agosto's (2002) study on twenty-two ninth and tenth grade females who were enrolled in a Rutgers University enrichment program in science and technology, found that they tended to make superficial decisions when using the Internet by *satisficing.* These three factors, Internet usage, electronic journal usage and the tendency to *satisfice,* suggest that younger researchers will probably be less inclined to invest the time and effort necessary for requesting ILL than older people.

Gender is another factor that has been found to account for differences in the amount of library use. Studies have shown that male students use libraries more than female students (Adomi & Ogbomo, 2003; Jiao & Onwuegbuzie, 1997) and they also publish more than females (Barjak, 2006; Leahey, 2006; Prpic, 2002; Toren & Moore, 1998) which may affect the amount of their ILL use.

Mother-tongue has also been shown to affect library use in that many academics prefer to read and publish in their mother-tongue. A study on faculty at the University of Buenos Aires in Argentina found that 77% of humanists and 73% of social scientists preferred using information sources in their mother-tongue – Spanish,

and only 6% of humanists and 18% of social scientists used information sources in English (de Tiratel, 2000). In a study in Belgium at a Flemish engineering school, it was found that 42% of students borrowed books in the Dutch language, the mother-tongue of most users, and 45.5% borrowed English language books (Rousseau & Vandegehuchte, 1995).

However, in Israel, the situation is somewhat different. Due to the fact that the Hebrew language, the mother-tongue of most researchers, is a relatively uncommon language, English has become the language of science (C. M. Anderson, 1999), and "in many fields [it is the] primary language for research and academic writing" (Kheimets & Epstein, 2005, p. 60). As a consequence, the majority of Israeli students and researchers use English information sources and publish in the English language (Arunachalam & Singh, 1988; Kheimets & Epstein, 2005).

Two studies carried out in the U.S. have shown a relationship between library use and mother-tongue. In their study on the library use patterns of 522 students at a mid-southern and north-eastern university in U.S., Jiao & Onwuegbuzie (1997) revealed that students who were non-native English-speakers used the university library more than native speakers. And a study of 549 students at the South Seattle Community College (South Seattle Community College Washington, 1993) found that 63% of non-native English speakers were frequent users of the library, compared to 45% of native speakers. Both these studies concluded that non-native speakers had social and economic issues to deal with in addition to their studies which influenced their library use.

While native Hebrew speakers expect to use library materials in English, immigrants and minority groups may prefer materials in their native language, and due to a sense of alienation at Israeli universities (Erdreich, Lerner, & Rapoport,

2005), they may choose subject matter that deals with sociological or literary aspects of their culture most of which may only be available in the native language. It is possible also that the publications they need are only available at other libraries compelling them to use ILL more than native Hebrew speakers.

2.1.3.2 Productivity and Use/Non-Use of ILL

Scientific productivity, i.e., the prolific publication of articles and books, has been shown to contribute to increased library use. In his case study on 734 non-users at a special library in Bangalore, Sridhar found a "positive and strong relation [ship] between [the] *professional activities and achievement index* [which consisted of prolific publication and participation in conferences] and use of library documents and services" (1994, p. 20). In other words, library users tended to be more productive than non-users.

For many researchers, productivity is connected to their desire for tenure/promotion due to the "publish or perish" mentality in academia. The literature is replete with studies documenting that productivity declines after the receipt of tenure (Bridgwater, Walsh, & Walkenbach, 1982; Holley, 1977; Tien, 2000).

Other studies have shown that productivity is connected to possessing the "scared spark of academic research", i.e., an intrinsic motivation to publish irrespective of rewards (Rodgers & Rodgers, 1999) or reduced teaching loads. In their study on new faculty in the natural sciences, and social and behavioral sciences in members of the National Association for State Universities and Land Grant Colleges, Kaya, Webb & Weber (2005) reported that natural scientists who had predominantly research goals published more than social and behavioral scientists who had predominantly teaching goals. And a similar finding was uncovered by Hunter & Kuh

(1987) who found that prolific contributors to journals in higher education were not as occupied by teaching commitments as their less-productive counterparts.

A recent study by Zainab (2001) on the relationship between library resources and services and publication productivity among 83 engineers and 239 researchers at the University of Malaya and National University of Malaysia found a strong positive correlation between the use of ILL and productivity. More than 50% of the high/very high publishers rated ILL as useful or very useful, and less than 50% were non-users.

Sridhar and Zainab's studies provide enough evidence to suggest that faculty with predominantly research goals and who publish frequently, will probably also request more ILL than faculty who are less productive.

2.1.3.3 Academic Discipline and Use/Non-Use of ILL

Researchers from different academic disciplines approach their research in different ways and this may account for variations in use and non-use of ILL. The United Kingdom's government-sponsored *Research Assessment Exercise* (RAE) provided four definitions of research: (a) humanities research which is "original investigation undertaken in order to gain knowledge and understanding; scholarship; the invention and generation of ideas ... where these lead to new or substantially improved insights" (RAE, 2001, p. 8) and whose main outcome is "critical commentary"(Burkhardt & Schoenfeld, 2003, p. 5); (b) science research which consists of the same basic premise as the humanities but whose main outcomes are: "models … and assertions … built on empirical evidence …and [published in] research journals, books and conference [proceedings]"(Burkhardt & Schoenfeld, 2003, p. 5); (c) engineering research, which consists of "the invention and generation of ideas ... and the use of existing knowledge in experimental development to produce new or substantially improved materials, devices, products and processes, including

design and construction" (RAE, 2001, p. 8) and whose key products are "tools and/or processes that work well for their intended uses and users, with evidence-based evaluation"(Burkhardt & Schoenfeld, 2003, p. 5); and (d) arts research, which consists of "the invention and generation of ideas and, images, performances and artifacts including design, where these lead to new or substantially improved insights" (RAE, 2001, p. 8) and whose key outcomes are plays, concerts, films, opera and ballet performances. Both Storer's (1967) division of sciences into hard and soft and Bilgan's (1973) extension of this definition to include pure and applied, and life and non-life are also worth noting in this context.

Due to the inherent differences among the disciplines in the aims, methods and key outcomes of the research processes, researchers also have very different information needs. Several studies on library user from different disciplines have concluded that one of the main differences between scientists and humanists was the amount of their electronic journal and book usage.

A study on the differences in Internet use among researchers from different disciplines by Lazinger, Bar-Ilan & Peritz (1997) on 918 faculty members at the Hebrew University of Jerusalem in Israel found that Internet use was significantly higher among scientists and researchers of agriculture than among humanists and social scientists.

Another Israeli study by Shoham (1998) on scholarly communication at two universities also found significant differences in the information needs of researchers from the different disciplines. Although researchers from all disciplines relied heavily on professional journals, there were significant differences in the use of books and abstracts; 94% of scientists and 92% of humanities scholars used journals for their current research, while only 79% of scientists and 91% of humanists used books, and

only 33% of scientists and 10% of humanists consulted abstracts. Shoham's findings suggest that among ILL users scientists are more likely to request articles and humanists are more likely to request books.

A more recent study by Hiller (2002) of over a thousand faculty members and graduate students at the University of Washington Libraries on the impact of online information resources and information technology on work practices also found major differences between the types of library materials used among the different disciplines. Sixty-five percent of science faculty and 36% of humanities and social science faculty considered electronic journals to be a very important resource and 25% of health sciences faculty and 79% of humanities and social sciences faculty considered books a very important academic resource, whereas 76% of sciences faculty and 75% of humanities and social sciences faculty considered traditional journals a very important resource.

Several studies on the information-seeking habits of researchers have noted that humanities scholars tend to request ILL more than scholars from other disciplines. George et al.'s (2006) study on doctoral students' information-seeking behavior at Carnegie Mellon University showed that 75% of humanities students were users of ILL, compared to 57% of computer science students and 36% of business and politics students.

Stone's (1980) study on the information needs of humanities' scholars at the University of Sheffield observed that humanists used ILL more extensively than scholars in other disciplines due to their need for primary and esoteric texts and due to the wide range of materials they require.

Herman's (2004) qualitative study on the information needs of faculty at a humanities and social sciences university in Israel provided several insights into the

discipline-related difference among scholars and possible reasons for use and non-use of ILL. She cited a computer scientist who had "a constant burning need to get hold instantly of any information which may be relevant" (p. 126) and a historian who was usually able to "circumvent the problem [of delayed information] by forming temporary hypotheses" (p. 126) suggesting that computer scientists almost certainly would not be willing to wait for ILL requests, whereas historians probably would.

Although the above studies indicate that there are discipline-related differences in the use of ILL, one study suggested that these differences may be minimal. Hiller's (2002) study on the discipline-related differences in library use among faculty and doctoral students at the University of Washington found no statistically significant differences in the use of ILL among researchers from the various disciplines. However, he did find that there was slightly more use in the humanities and social sciences than in science, engineering and the health sciences.

The above studies demonstrate that there are significant discipline-related differences in information use. More importantly, though, they demonstrate that humanities' researchers tend to use ILL more than researchers in other disciplines.

2.2 Theories of Information-Seeking

The use and non-use of ILL cannot be studied without taking into consideration the information-seeking process that precedes it. Although ILL requesting is an integral part of the information-seeking process and occurs once an information need has been identified and attempts have been made to fill it, it is seldom mentioned in the information-seeking literature. The bulk of information-seeking research emphasizes the stages in the search process and the behaviors associated with attempting to fill information needs.

According to Wilson (1999, p. 249), information-seeking behavior consists of "those activities a person may engage in when identifying their own needs for information, searching for such information in any way, and using or transferring that information", or in other words, it begins with the acknowledgement of an information need, continues with the attempts to fill it, and culminates when that information is used.

Often cited in this area of information-seeking research is Ellis' (1989) work on the information-seeking habits of social scientists at the University of Sheffield, which outlined the following stages in the information-seeking process: (a) starting, i.e., the initial search for information; (b) chaining, i.e., following up on sources in a backward or forward direction; (c) browsing, i.e., semi-directed searching in areas of potential interest; (d) differentiating, i.e., filtering and selecting from among the sources according to the nature and the quality of the information; (e) monitoring, i.e., keeping abreast of developments in an area; and (f) extracting, i.e., systematically working through a particular source in order to identify material of interest. The stage most relevant to ILL requesting is differentiating, when an individual filters and selects from among the sources retrieved by noticing differences between the nature and quality of the information offered. Ellis found that during this stage, social scientists prioritize sources according to three main criteria: by substantive topic, by approach or perspective, and by level, quality, or type of treatment. Ellis' concept of differentiating is, in effect, the same as decision-making and evaluation and is the most important aspect of pre-ILL information-seeking.

2.2.1 Theories of Decision-Making

Decision-making is an integral component of both the information-seeking and ILL processes. Satisfaction with ILL outcomes is dependent on the decision-

making and evaluation a person undertakes prior to requesting ILL. Users of ILL are faced with more decision-making than people who download from the Internet or photocopy from journals. Not only must they evaluate the potential relevance and usefulness of items located in databases or on the Internet, based on criteria of their choosing, but they must also decide whether the item is worth the delay, cost and effort needed to request it via ILL.

Decision-making was first recognized as a significant human activity in the 1950s when Simon's groundbreaking research defined it as "the activity of evaluating and choosing among alternative actions to take in response to a problem" (Simon, 1992, p. 32). Simon identified the following six stages of decision-making: (a) recognition of a problem; (b) formulation of a problem; (c) generation of alternatives; (d) information search; (e) selection of information; and (f) action. Based on Simon's typology, ILL requesting is the action that occurs after a person has recognized that a needed item is unavailable in the local library or via the Internet and has considered the various ways and costs of obtaining it (such as traveling to another library or ILL).

Theories on decision-making applicable to the ILL process can be divided into: (a) non-rational and (b) rational theories. The first non-rational theory is Zipf's *Principle of Least Effort* (1949) that holds that a person will minimize the overall effort invested to obtain information even if the quality or quantity of the information is compromised. This theory was modified by Simon (1955; 1956) by his *Satisficing* theory that holds that a person will suffice with satisfactory, but not necessarily optimal, decision-making. In a library setting, non-rational decision-making occurs when a person chooses to download a second-rate article downloaded from the Internet instead of requesting a first-rate one via ILL. This phenomenon has been referred to as the *Convenience Catastrophe* by Roy Tennant (2001) due to the

growing tendency of students to *satisfice* with the convenient Internet instead of using inconvenient library resources to seek information. The second non-rational theory is Simon's (1955; 1956) *Bounded Rationality* that holds that a person will make a reasoned decision within the constraints of time and their cognitive ability. This type of decision-making occurs when a person will make a decision about potentially-relevant publications based on cognitive and time constraints and not based on the amount of effort required. As non-rational types of decision-making, both *Satisficing* and *Bounded Rationality* are associated with a more superficial style of information-seeking that for most library users will not include ILL requesting.

The main rational decision-making theory applicable to ILL requesting is *Cost-Benefit Decision-Making* (Dupuit, 1952; Kahneman & Tversky, 1979; Marshall, 1890) that holds that a person will only perform actions from which he/she will derive material benefit. As ILL requesting involves both cost, in the form of time, effort and money, and a material benefit, in the form of a publication that contributes, in the short or long-term, to a research project, it is fair to assume that it consists primarily of rational decision-making.

2.2.2 Models of Information Evaluation

Information evaluation is inextricably entwined with decision-making in that it is impossible to make decisions about potential ILL requests without previously evaluating the bibliographic information available. Evaluation occurs at the following two junctures in the information search process: (a) when a source has been located in a database or on the Internet and the user must decide if it is relevant, and (b) when an item has been read and the user has to decide whether to cite it. The process that leads to ILL requesting requires users to makes an additional decision, thereby increasing the rationality of the decision-making process. Not only must they decide which items

appear to be relevant and useful, they must also decide whether to request via ILL those potentially relevant items if they are unavailable locally.

Research on how people evaluate print and electronic information suggests that they initially *satisfice*, i.e., make satisfactory but not necessarily optimal decisions (Agosto, 2002), but then they make more in-depth choices based primarily on the relevance of the topic (Fitzgerald & Galloway, 2001; Wang, 1994).

In his *Document Selection Model,* Wang (1994) used qualitative methods to study the document selection choices of 25 agricultural economists at a major American university. His findings showed that topicality was the most predominantly-used criterion among 11 identified: (a) topicality, i.e., the user's perception of whether or not the topic is relevant or related to his/her project, the single most influential factor on document selection; (b) orientation/level, i.e., the intellectual level of the document and for which audience it is intended; (c) expected quality, i.e., the estimation of the worth of a document; (d) novelty, i.e., whether or not the user has seen the document before or whether its content is new to the user; (e) discipline, i.e., the broader subject area or branch of knowledge to which the document belongs (f) recency, i.e., the comparative newness of a document; (g) relation/origin, i.e., any pre-existing relationship between the document writer and the reader such as reader's thesis advisor; (h) special requisite, i.e., document was written in a language unknown to reader; (i) reading time, i.e., whether the user has time to read the document; (j) authority, i.e., the credentials of the author or the journal; and (k) availability, i.e., the easiness of obtaining a document. Although Wang's study sheds light on the criteria people use to evaluate items in ILL and non-ILL situations, it does not address the issue of satisfaction with ILL outcomes.

In order to rectify this deficiency, Wang & White (1995) carried out a follow-up study a year later emphasizing document use by measuring whether the selected items were actually read or cited. They found that the following additional selection criteria were employed before actually reading or citing an item,: (a) whether the item was a classic, i.e., the first substantial work on a topic or methodology; (b) reputation, i.e., whether or not the document is written by a reputable author or organization or published in a reputable journal; and (c) journal spectrum, i.e., the centrality of the journal to the field; (d) publicity, i.e., the document received extraordinary recognition in the field; (e) standard reference, i.e., document contains the best accepted treatment of a particular topic; and (f) actual quality, i.e., evaluation of a document's quality after reading the content.

Fitzgerald & Galloway (2001) further developed the issue by distinguishing between the judgment of relevance and the evaluation of the expected quality of a document. Their interpretive study on ten undergraduates at a large university in Georgia found that users made decisions about whether to actually use a document based on two main factors: (a) relevance, i.e., the closeness of a resource's topicality to their information problem; and (b) evaluation of quality, i.e., how good the information is for their purposes. Like Wang et al., Fitzgerald & Galloway found that the most important and frequently-employed decision criterion at all stages in the decision-making process was whether the document was *on topic*.

All three of the above studies suggest that users make a series of decisions regarding the documents that appear to be useful and an additional set of decisions about whether to actually use, i.e. read and cite a document. These evaluations and decisions are considerably weightier when requesting ILL due to the inherent delay and cost which do not exist when obtaining items by other means.

2.2.3 Models of Information-Seeking Styles

Information-seeking behavior is well-documented in the library and information science literature (Belkin, 1980; Dervin & Nilan, 1986; Kuhlthau, 1988; T. D. Wilson, 1981; T. D. Wilson et al., 1999), yet only a handful of studies has focused on individual styles of information-seeking. According to the Merriam-Webster dictionary (2005), *style* is a particular manner or technique by which something is done, created or performed. Information-seeking style therefore, refers to the different ways people seek information and not their underlying needs (T. D. Wilson, 1981) or the stages they undergo in their attempts to locate information (Ellis, 1989).

Two studies addressed the issue of information-seeking as a constantly-evolving process, irrespective of differences in individual styles. Bates's (1989) *Berry-Picking Model* of information-seeking revealed that users make a series of selections during the search process which are constantly evolving and are being modified until a choice is made about the best result. Bates claims that her *Berry-Picking Model* applies to all of the following search strategies: (a) footnote chasing, i.e., following up footnotes found in books and articles; (b) citation searching, i.e., finding out who cited a particular item; (c) journal run, i.e., searching all volumes of a core journal in a relevant field; (d) area scanning, i.e., browsing materials that are physically located with previously located relevant materials; (e) subject searchers in bibliographies and abstracting and indexing databases; and (f) author searching, i.e., searching for all works by a particular author on a specific topic. Bates' model is important in that it acknowledges that users search by making a series of constantly-modified selections and not by employing a single search strategy.

The second study to draw attention to the ever-evolving nature of the search process is Pirolli & Card's (1999) *Information Foraging Theory* which showed that users' information searching patterns in an electronic environment are similar to animals' food foraging strategies. They coined the word *Informavores* to describe the decisions people continually make about the kind of information to look for, whether to stay at the current site and try to find additional information or to move to another site, which links to follow, and when to finally stop the search. Because people are basically lazy, and as laziness like food-hunting is a survival-related trait, they must optimize their searching behaviour by minimizing the amount of thinking required. One of the most important concepts in the *Information Foraging Theory* is *Information Scent*. Just as animals rely on scents to indicate potential food sources, humans rely on various cues in the information environment to indicate their chances of success. Human users estimate how much useful information are they likely to obtain using a certain strategy and then compare the efforts with the expected outcome. When the information scent stops getting stronger, i.e., when users stop finding useful additional information and do not expect to find it soon, they move to a different information source. While Bates' and Pirolli & Card's studies contribute to our understanding of the constantly-evolving process of information-seeking which is modified according to the amount of reinforcement received, they do not deal with individual differences in styles of information-seeking.

The issue of individual differences in styles of information-seeking has been addressed in two studies. Heinstrom's (2002) doctoral dissertation on the effects of personality and learning styles on information-seeking at a Finnish university and Steinerova & Susol's (2005) study on the behavior of Slovakian library users. Using personality and learning theories to test the information-seeking behavior of 305

masters' students, Heinstrom identified three main styles of information-seeking: (a) *Fast Surfing* which is characterized by selecting information based on easy access and minimal effort and is often associated with problems in relevance judgment and critical evaluation of information, (b) *Broad Scanning* which is characterized by seeking information actively and spontaneously from a wide range of sources, and (c) *Deep Diving* which is characterized by intrinsic motivation, the desire for high quality, and the willingness to work hard in order to obtain reliable, scientific information.

Steinerova & Susol's (2005) study of the information-seeking styles of 793 Slovakian university students and faculty yielded similar results to Heinstrom's. They identified the following two styles of information-seeking: (a) *Type S* which is characterized by pragmatic ways of information seeking whereby the searcher relies on low cost and speedily-available electronic items, and (b) *Type A* which is characterized by analytic, in-depth information processing whereby the searcher seeks mainly prestigious and peer-reviewed print journals. The superficial information-seeking identified above (*Fast Surfing* and *Type S*) is reminiscent of two theories that recognized superficiality as a time and effort-saving universal human trait: (a) Zipf's *Principle of Least Effort* (Zipf, 1949) which holds that people minimize the overall effort invested to obtain information even if the quality or quantity is compromised, and (b) Simon's (1955) *Satisficing* theory that holds that people make satisfactory but not necessarily optimal decisions.

Based on Jacobs & Morris' (1999) assertion that ILL is a more thorough type of information-seeking than other information-seeking endeavors, it would appear that both Heinstrom's and Steinerova & Susol's studies support the current study's assumption that graduate students and faculty with a thorough information-seeking

style (*Deep Divers* or *Type A)* will more likely to use ILL than those with a superficial information-seeking style (*Fast Surfers* or *Type S).*

2.3 Satisfaction Theories

Satisfaction, or the fulfillment or gratification of a need (Merriam-Webster Incorporated, 2005), is ultimately the most important aspect of the ILL process. Two theories of satisfaction formed the basis for the evaluation of satisfaction with the outcome of ILL requests.

2.3.1 Expectation Disconfirmation Theory

Expectation Disconfirmation Theory (EDT) was first reported by Oliver (1980) in his field study on satisfaction with the influenza vaccine among 3,000 residents and students of a southern-central American city which showed that satisfaction was a function of expectation in both the satisfied and dissatisfied groups. The basic premise of EDT is that satisfaction, or expectancy disconfirmation, occurs when performance, or outcome, exceeds expectations. First, expectations are formed and then they are disconfirmed through performance comparisons. In their longitudinal study on satisfaction with Internet-based services among e-business community members, Khalifa & Liu (2001) summed up EDT:

> …satisfaction is determined by the intensity and direction of the gap between expectation and perceived performance [or outcome]. An individual is more likely to be satisfied if the performance of service [outcome] meets (confirmation) or exceeds (positive disconfirmation) his/her expectations. On the other hand, he/she is more likely to be dissatisfied

> if the service performance [outcome] falls below his/her expectations (negative disconfirmation). (p. 602)

By employing EDT, the current study examined patrons' perceptions of the factors which contribute to satisfactory ILL outcomes. Activities such as reading an abstract, choosing an item with an informative title and receiving reference librarian assistance prior to requesting ILL were expected to provided additional information about a document thereby reducing the gap between expectations and performance and causing positive disconfirmation. Likewise, receiving an item received within a user's window of usefulness was expected to cause strong positive disconfirmation, whereas negative disconfirmation occurred when users did not receive an item within their expected time-frame. The above theory was employed in the current study by defining the following two expectation criteria: (a) the expected value of an ILL request and, (b) the expected relevance and usefulness of an ILL request. ILL users who judged their most recent ILL requests as more valuable, relevant and useful than they had expected were deemed as experiencing positive disconfirmation, whereas ILL users who judged their recent ILL requests as less valuable, relevant and useful than they had expected were deemed as experiencing negative disconfirmation.

2.3.2 End-User Computing Satisfaction Theory

The second satisfaction theory is *End-User Computing Satisfaction (EUCS*) which holds that by measuring user satisfaction with computer systems it is possible to predict future user behavior (Doll & Torkzadeh, 1988; Etezadi-Amoli & Farhoomand, 1991). Doll & Torkzadeh's (1988) landmark study using qualitative and quantitative methods on 618 users in 44 public and private firms in USA identified the

following five factors for measuring end-user computer satisfaction: (a) content, (b) accuracy, (c) format, (d) ease of use, and (e) timeliness. This theory is most pertinent for measuring the satisfaction of users who interact solely with a computer and not for measuring user satisfaction with a product. As the *Expectation Disconfirmation Theory* has been shown to be a successful predictor of satisfaction with products and services (Khalifa & Liu, 2001; Shi, Holahan, & Jurkat, 2004), it was employed in the current study to measure satisfaction with ILL outcomes, based on the assumption that expectation of a certain outcomes is the main factor determining satisfaction with the actual outcome.

2.3.3 User Satisfaction with Libraries

Previous research on user satisfaction with library services and resources has consistently found that satisfaction is comprised of two main components: (a) satisfaction with the system and services, such as the degree of user-friendliness and speed of retrieval, and (b) satisfaction with the content and quality of information obtained (Applegate, 1995; Murfin & Gugelchuk, 1987; Shi et al., 2004). In a study of 105 faculty and administrators from eight accredited science and engineering colleges and universities located in the north east United States, Shi et al. (2004) measured five information product performance attributes derived from the *User Information Satisfaction* (UIS) survey developed by Ives (1983) and revised by Baroudi & Orlikowski (1988): (a) accuracy - the extent to which the information is correct and true, (b) precision - the degree of exactness in the information, (c) relevance - the degree of pertinence or congruence of the information relative to the interests of the user, (d) details - the amount and depth of the knowledge that is delivered to the user by the information, and (e) appropriateness - the extent to which the format, language, and comprehension levels of the information are suitable for the user. Their main

finding was that "satisfaction with the information product may be more important for overall satisfaction when compared to satisfaction with the information system/service" (Shi et al., 2004, p. 127). They also found that the degree of disconfirmation between the expectation of service and the actual service received determined user satisfaction with libraries, i.e., satisfaction or dissatisfaction occurs when users compare the performance of what they received against some "prepurchase or disconfirmation standard" (p. 128). Shi et al.'s findings, together with Khalifa & Liu's (2001), provided the theoretical basis in the current study for using EDT to measure satisfaction with ILL.

2.3.3.1 User-Satisfaction with ILL

The overall aim of ILL is to achieve satisfactory outcomes which are both relevant and useful to users. Although relevance has been researched extensively in the context of information retrieval and the criteria users employ to make decisions about items retrieved (Greisdorf, 2003; Mizzaro, 1997; Tombros & Crestani, 2000), little research seems to have been conducted on the relevance of ILL outcomes and the extent to which ILL outcomes may exceed expectations.

In his report on the performance of document supply systems, Line (1987) differentiated between satisfaction with the ILL service and satisfaction with the outcome of an ILL request by suggesting that overall satisfaction with ILL depends primarily on the extent to which an ILL request meets a person's information needs and not the extent to which the ILL service is fast, cheap or convenient.

Nisonger (2001) concluded in his review of the literature on assessment and evaluation of information that:

> Most studies [on ILL] have tended to focus on library performance rather than the value of the information

> obtained or the benefit derived by the end user …
> [and] do not address questions such as did the
> document's content conform to the user's expectations
> based on the citation that generated the request or
> how useful was the document to the patron? (p. 16).

Both Line and Nisonger suggest that satisfaction with an ILL request is ultimately the most important aspect of the information-seeking process and that ILL departments should aim to meet users' information needs by providing relevant and useful ILL requests, and at the same time to continue to provide high levels of service.

The findings of three early studies on satisfaction with the outcomes of ILL requests showed that most users considered the items received via ILL to be relevant and useful. In Barr & Farmer's (1977) study on ILL requesting in a medical school library in the UK, 77% of respondents deemed their ILL requests to be of considerable or moderate value, while in Taylor's (1979) study on satisfaction with ILL requests in public libraries in Illinois 89% of respondents claimed that the items they received answered their questions satisfactorily.

Stone's (1983) study of 834 ILL requests supplied to faculty and post-graduate students from all disciplines at the University of Sheffield revealed a much lower satisfaction rate. Only 74% of respondents claimed that the material they received via ILL was *as useful as expected*, or *more useful than expected*, caused, according to Stone, by the widespread non-use of abstracts prior to requesting ILL.

The importance of consulting abstracts on ILL outcomes was also uncovered in Ford's (1980) study on UK medical school and hospital libraries. His study of the pre-ILL information-seeking behavior of users whose ILL requests were relevant and those whose requests were non-relevant showed that of the 11.5% of users who

received irrelevant information, none had examined abstracts and indexes prior to requesting ILL.

The findings of the above studies suggest that although most users of ILL considered the outcomes of their ILL requests to be satisfactory, their satisfaction levels could have been raised if they had consulted abstracts prior to requesting ILL.

2.4 Research on Secondary Information Sources and ILL

Secondary information sources, such as abstracts, tables of contents and citation indexes, have been shown to greatly assist patrons in deciding whether an item is likely to be relevant and useful (Montesi & Urdiciain, 2005) and even in today's electronic environment when full-texts are frequently available, abstracts still play a vital role in the information-seeking process (Pinto & Lancaster, 1999).

An abstract, i.e., "a brief, comprehensive summary of the contents [of a document …that is] accurate, succinct, quickly comprehensible, and informative" (APA, 2001, p. 12) is one of the best ways for a user to assess the content of a document and its potential relevance. In their book *Reference and Information Services,* Bopp & Smith (2001) called an abstract "a value-added service [in that it acts as] a document surrogate" (p. 509). A citation index is a helpful tool "to determine the frequency with which a specific work is cited by others, an indication of its significance in the literature of the field" (Reitz, 2004). According to the *Science Citation Index* (2006) web site, it "provides access to current and retrospective bibliographic information, author abstracts, and cited references [from approximately 8,700] of the world's leading scholarly journals".

However, little research exists on whether patrons perceive abstracts and citation indexes to contribute to satisfactory ILL outcomes. Two noteworthy exceptions are Stone's (1983) study of ILL users at Sheffield University and Exon's

(1993) doctoral dissertation which replicated Stone's study. Stone (1983) investigated the antecedents and outcomes to ILL, i.e., the information sources that patrons examined before requesting ILL and the factors that influenced satisfaction with the items they received. As the sole source of locating abstracts at the time of the study was by browsing printed versions of abstracts and indexes, only 18% of researchers had read an abstract prior to requesting ILL while the majority (39%) requested items that had been cited in other reputable works. However, of the 18% who had read an abstract, 80% considered the ILL outcome *as useful as* or *more useful than* expected, whereas only 73% considered the document *as useful as or more useful than* expected when an abstract had not been consulted. Stone concluded that reading an abstract was the most reliable means of assessing the relevance and usefulness of a document prior to requesting ILL and that the reason many patrons did not consult secondary information sources was probably due to the perceived inconvenience of doing so.

In his study on *Interlibrary Borrowing and the Information-Seeking Process* Exon (1993) replicated Stone's study first at a university in Denver, Colorado, USA in 1984 and again at a university in Perth ,Western Australian in 1991. His findings showed that even fewer Australian users, 9.4%, compared to Stone's 18%, had consulted abstracts prior to requesting ILL and only 1.1% of Denver respondents had consulted abstracts. As both Stone's and Exon's research were carried out prior to the widespread use of online abstracting and indexing databases, their findings may be less valid in today's digital environment. Their research does, however, provide enough evidence to hypothesize that satisfaction with ILL outcomes may be partially dependent on the consultation of secondary information sources, such as abstracts and citation indexes, prior to requesting ILL

2.5 Research on Indicative/Informative Titles

Article titles have long been recognized as a valuable tool for assessing the potential relevance of a document because “they constitute the most concise statement of the content of a document” (Diener, 1984, p. 222). Documents whose titles closely represent their contents afford their readers a better chance of receiving relevant and useful information than documents whose titles are very different from their content. Titles that are non-explicit, metaphoric or catchy make it hard for readers to estimate the content of the document and increase the chances of receiving irrelevant outcomes. Downloading a not-on-topic article from the Internet may be slightly inconvenient, but receiving it via ILL, which necessitates payment and delay, is both frustrating and time-wasting.

There are two main types of titles that can assist readers in their evaluation of a document: (a) indicative titles, which indicate the purpose of a paper, and (b) informative titles, which provide the main conclusions. According to Brikic et al. (2003), indicative titles reveal the main area of investigation, whereas informative titles convey messages about all the relevant elements in the paper. Both types of title aim to attract the reader’s attention without condensing the whole paper into the title, rendering reading of the paper redundant.

Research on the informational value of titles has suggested that titles are becoming longer (Diener, 1984, p. 222), and therefore more indicative and informative and as a result some scientific journals have begun giving explicit instructions to authors about title requirements. For example, the *Journal of Clinical Epidemiology* recently introduced a policy of obligating authors to use titles that are “simple declarative statements summarizing the message of the article as succinctly as

possible [in order to enable its readers to] better assess the content of the information in the article" (McGowan & Tugwell, 2005, p. 83).

However, not all informative titles are helpful in judging relevance. In a survey on the validity and prevalence of 12 active verbs such as prevents, abolishes, eliminates, prolongs, reduces, improves, predicts, lessens, weakens, increases, decreases and causes, in the titles of clinical trial reports, Goodman (2000) found that based on searches in *Medline* over a twenty-year period that informative titles were becoming more common, but not necessarily reliable, and that by the year 2010, 4.5% of all titles in clinical reports would contain one. In addition, he found that many informative titles were overly-optimistic, claiming to improve, lessen and prevent certain scientific phenomena.

However, despite the problem of reliability of titles, it seems likely that if ILL users choose items with indicative or informative titles they will more likely be satisfied with their ILL outcomes.

2.6 Research on Reference Librarian Assistance

The reference interview, i.e., "the process in which a reference specialist communicates with the patron in a manner designed to clarify the patron's initial question and to identify the patron's exact information need" (Long, 1989, p. 41), was first recognized as a crucial aspect of information-seeking almost 50 years ago when Taylor (1968) coined the phrase *Question Negotiation* to show the importance of the communication process between a librarian and a patron. Today, the process is more complicated than in the past due to the multitude of reference interactions such as face-to-face, telephone, chat and e-mail that focus on providing accurate answers with none, or minimal, question-negotiation (White, Abels, & Kaske, 2003).

Many faculty and students who are eligible for reference assistance do not actually request it. In a study on reference questions received during two one-month periods in 2003 and 2004 at the University of Illinois at Chicago health sciences library, de Groote, Hitchcock & McGowan (2007) showed that only 22% of faculty and 28% of graduate students requested reference assistance. In addition, George et al.'s (2006) study of 100 masters' and doctoral students at Carnegie Mellon University showed that only 40% of doctoral students from all disciplines requested reference assistance, whereas from the humanities 55% requested help and from the arts 44% did so.

For several years, the focus of reference research has been on accuracy rates and the quality of the interaction between librarian and patron. Hernon & McClure's (1986) landmark study on success rates of reference interviews employed unobtrusive methods to study the accuracy of responses of 26 academic and public librarians from the West, South and Midwest of America, and found that only 55% or responses were accurate, hence "the 55% rule". However, a later study by Durrance (1989) measured the success of 266 reference transactions in public, academic and special libraries in Michigan based on the user's *Willingness to Return* and found that reference transactions had a 63% success rate.

A more recent study on satisfaction with reference service using the Wisconsin-Ohio Reference Evaluation Program survey (Paster, Fescemyer, Henry, Hughes, & Smith, 2006) was conducted at the Pennsylvania State University Life Sciences Library. Their findings showed that 96% of students and faculty considered the outcomes of their reference transactions to be relevant to their research. A similar study conducted at Kent State University in 1996,showed that 78% of students and faculty received "exactly or approximately what was wanted and were satisfied"

(Radcliff & Schloman, 2001, P. 95). The Kent State study also showed that the 25% of reference users were from the humanities and only 11% were from the social sciences and medicine. (p. 94).

In addition, George et al.'s (2006) study showed that satisfaction among doctoral students was high and reference assistance was considered to be helpful to their research:

> …university library staff point to relevant resources, respond to questions, announce new resources and teach graduate students how to find resources, use the library, navigate the library Website, create a more focused keyword search, or plan and conceptualize a new project. Graduate students seek help in one-to-one sessions, e-mail, orientation session, research seminars, on site at the reference desk, live chat sessions and in class sessions. (p. 10)

Although the above studies focused on satisfaction with reference assistance, none seems to have focused on whether the patron was able to make satisfactory use of the material to which he/she was referred and the extent to which the reference interview contributed to satisfaction with ILL outcomes. Even Bopp & Smith's (2001) *Reference and Information Services: An Introduction*, which devoted an entire chapter to ILL, did not mention the impact of reference assistance on the outcomes of ILL requests.

Hawley's (1987) study of the referral process in public and academic libraries is a noteworthy exception. His findings showed that reference librarians were aware of their potential to influence user satisfaction but only referred to ILL when they

believed the benefits to outweigh the costs. Hawley's findings are important in that they highlight the role of reference librarians in the ILL process and their potential to impact the outcome of ILL requests.

As satisfaction rates with reference assistance are generally high, it seems likely that if the ILL option is pursued the outcome will more likely be satisfactory if it was preceded by a reference encounter than if it was not.

2.7 Research on Timely and Speedy Delivery

Timely delivery, i.e., the arrival of information "in time to be useful" (Stein, 1999, p. 76) for the individual researcher, has been the subject of a substantial amount of research on satisfaction with ILL outcomes. Early research by Barr & Farmer (1977) and Stuart (1977) on ILL delivery times assumed that speedy arrival was the most important aspect of satisfaction with ILL. However, more recent research has suggested that timely delivery may be more influential on satisfaction with ILL outcomes than speedy delivery.

Two studies focused on the problem of receiving ILL items at the wrong time. A study by Wilson & Eustis (1981) on 99 faculty members at Virginia Polytechnic Institute and State University on the impact of user frustration on humanities research showed that when ILL items arrived too early or too late the research process was hampered because the researcher was already involved with another aspect of his/her research.

In their study on ILL users' willingness to pay for ILL on 648 faculty and students at the University of Oklahoma, Murphy & Lin (1996) found that delays in receiving items caused by deliberation about whether an item would justify the cost also hindered the research process. Items received after a researcher had finished examining a subject were sometimes temporarily discarded even though they might

have been useful had they arrived earlier or later. Additionally, Murphy & Lin suggested that timely delivery had different meanings for different users; for some users of ILL, timely delivery involved receiving all items on a particular subject at the same time so that an entire subject could be evaluated comprehensively, while for others it involved receiving an item at any stage in the research process as long as it triggered new thought processes.

Weaver-Meyers & Stolt's (1996) study on delivery speed, timeliness and satisfaction with ILL at the Greater Midwest Research Libraries Consortium revealed that one of the most significant factors in the satisfaction process was a user's perception of delivery as timely, i.e., the receipt of an item at an appropriate time to be incorporated into a research project. And that together with cost and convenience of requesting, timely delivery was more important than speedy delivery on overall satisfaction with ILL. They observed that items received during a person's *window of usefulness,* i.e., the time period within which items could be integrated into a research project, were considered more relevant than items received outside their *window of usefulness,* when it was too early or too late to use them effectively. Therefore, a researcher is more likely to be satisfied with the outcome of an ILL request if he/she requests and received an item within his/her *window of usefulness*.

In Jacobs & Morris' (1999) report on document delivery in the UK, they referred to the effects of stage in the research process on the amount and type of information users require and on timing of delivery. They described two distinct information-seeking stages in the research cycle: (a) the speculative and iterative stage which is characterized by searching quickly to gain an up-to-date overview of research areas; and (b) the ongoing and thorough stage which is characterized by comprehensive information-seeking and is "traditionally supported by academic

libraries and their ILL departments" (p. 71). They claimed that users considered publications timely according to the stages they were at in the research cycle. For example, a review article would be considered timely if it arrived during the literature evaluation or discussion stages, but irrelevant if it arrived during the methodology stage, whereas a description of an experiment would be considered timely if it arrived during the methodology stage but untimely if it arrived at the idea-formulation or data analysis stages.

The above studies provide sufficient evidence to hypothesize that satisfaction with ILL outcomes is somewhat dependent on timely delivery. However, the achievement of timely delivery is dependent firstly on the user who must place an ILL request as soon as the need arises, and secondly on the performance of the ILL service providers.

2.8 Summary

Although recent research on ILL has focused on diverse issues such as access versus ownership, satisfaction with ILL services, the effects of e-journals and technological developments on ILL requesting and services, it seems that no research has studied the differences between ILL users and non-users according to frequency of library use, style of information-seeking, demographics, and academic profile. Moreover, only a handful of research has emphasized the influence of factors such as consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery on satisfaction with ILL outcomes which are relevant and useful to the requester.

There is ample evidence in the literature to suggest that there may be differences between users and non-users of ILL in their frequency of library use, style of information-seeking, demographics, and academic profile. There is also evidence

to suggest that satisfactory ILL outcomes are more likely achieved if patrons perceive consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery as beneficial.

Since no other studies have explored the differences between users and non-users of ILL or whether the factors perceived as beneficial by users of ILL are related to satisfaction with ILL outcomes, the current study attempted to shed some light on these issues in order to ensure that researchers' information needs are met, their time is employed productively and they are fruitful in their research.

2.9 Purpose of the Study

In view of the centrality of ILL requesting in the research process, the purpose of the current study was to investigate whether there were differences between users and non-users of ILL according to their frequency of library use, style of information-seeking, demographics and academic profile. In addition, it aimed to find out whether there is a relationship between the perceived benefits of consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery on satisfaction with ILL outcomes which prevent the receipt of unwanted or low quality material and time-wasting to the researcher and to his/her institution.

2.10 Significance of the Study

The study was significant because it highlighted the role of ILL in the information-seeking process and in the research cycle as a whole. By comparing users and non-users of ILL, it shed some light on the differences among them according to frequency of library use, style of information-seeking, demographics and academic profiles. Additionally, by revealing the extent to which the perceived benefits of

consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery were related to satisfaction with ILL outcomes, the study wished to enlighten librarians and patrons about how to achieve patron satisfaction and consequently, facilitate the timely completion of research projects. Moreover, by highlighting these aspects of ILL, it wished to assist librarians in accommodating the different styles of information-seeking and providing services and resources that promote effective use of ILL.

CHAPTER THREE: METHODOLOGY

3.1 Research Questions

The following two research questions were examined in the study:

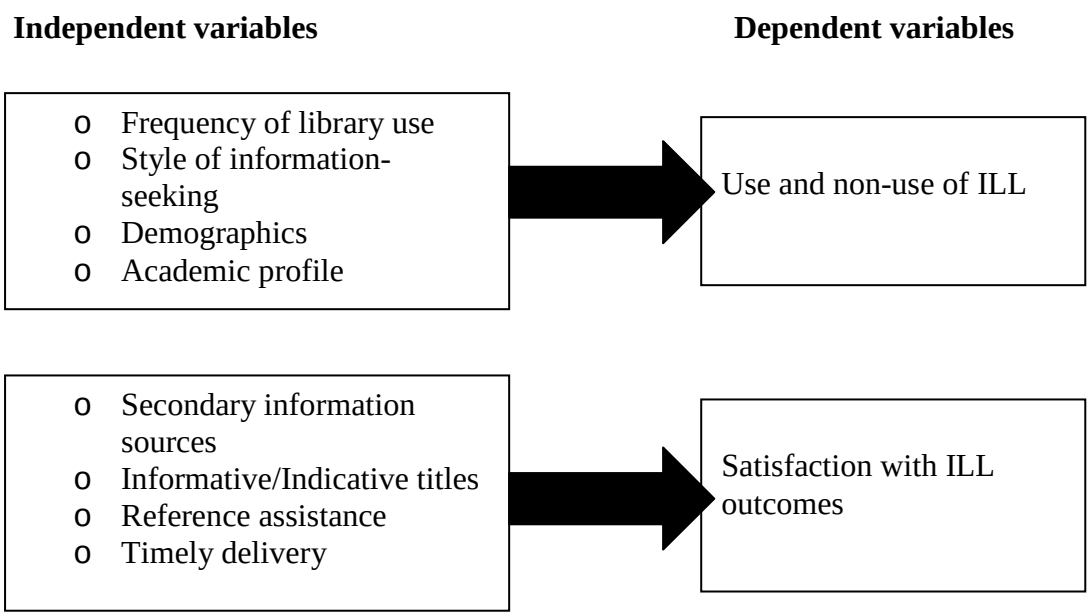
1. What are the differences between users and non-users of ILL according to:
    - frequency of library use
    - style of information-seeking
    - demographics - age, gender, and mother-tongue
    - academic profile - seniority, tenure/promotion status, productivity level, and academic discipline
2. To what extent are the perceived benefits of the following factors related to satisfaction with ILL outcomes?
    - consultation of secondary information sources
    - choosing indicative/informative titles
    - receiving reference assistance
    - achieving a timely delivery

3.2 Design of the Study

The study employed quantitative research methods to determine the differences between users and non-users of ILL and to assess the extent to which the perceived benefits of consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance, and achieving timely delivery were related to satisfaction with ILL outcomes. More specifically, it employed survey research in the form of a specially-compiled web questionnaire which was distributed to faculty and doctoral students at two Israeli research institutions by e-mail.

3.2.1 Definition of Variables

The following variables were examined in the study:



- *Use of ILL:* requesting an item via ILL at least once during the preceding year.
- *Non-use of ILL:* not requesting any items via ILL during the preceding year.
- *Frequency of library use:*
    - the number of times information was sought from library databases within the library or from a person's home/office

    the number of publications that were downloaded/photocopied or borrowed from the library.
- *Style of information-seeking:* the manner of searching for information based on critical information judgment, relevance judgments, document selection, investment of effort, thoroughness, search strategies, and preferred sources of information, the following three styles of information-seeking were employed.
    - *Fast Surfing:* seeking information in a superficial, surface manner.
    - *Broad Scanning:* seeking information in a comprehensive manner.

    - *Deep Diving:* seeking information in a deep, exhaustive manner.

- *Demographics:*
    - *Age:* calculated by subtracting the respondent's year of birth from the current year.
    - *Gender:* male/female
    - *Mother-tongue:* the language a person felt most comfortable speaking/reading/writing. For example, some Russian immigrants considered Hebrew to be their mother-tongue because they used it more frequently than Russian, even though they learned Russian first.
- *Academic profile:*
    - *Seniority:* the number of years since the first academic appointment - calculated by subtracting this number from the current year.
    - *Tenure status*: the holding of a tenured or non-tenured position at the current institution of employment.
    - *Promotion status*: the aspiration to be promoted to a higher rank at the current institution of employment or the absence of such an aspiration
    - *Productivity level:* the number of books/articles published, conference presentations given and articles that were peer-reviewed in the preceding year.
    - *Main academic discipline:* the discipline a researcher considers as his/her main field of research.
- *Secondary Information Sources:* sources of information which aid in the evaluation of a potentially-relevant publication such as:
    - *Abstract:* a brief summary outlining the main content of a journal article or other document.

    - *Table of contents:* a listing of the main topics covered in a book, arranged by chapter or section.
    - *Journal ranking index:* a publication containing the scores allocated to journals based on the number of times they were cited.
    - *Review:* an essay or article that gives a critical evaluation or appraisal of a book or article
    - *Citation index:* a bibliographic index containing a list of articles/authors that have cited other articles/authors.
    - *Institutional ranking index:* a publication containing the scores allocated to institutions based on their scientific productivity. The affiliation of an author with a highly-ranked institution is generally a sign of prestige.
- *Indicative Title:* a concise statement of the main topic of research which includes the intentions or purpose of the study.
- *Informative Title:* a concise statement of the main topic of research which includes the design and/or results of a study.
- *Reference Assistance:* a personal or remote interaction with a reference librarian initiated by a patron in order to receive additional information about a potentially relevant publication.
- *Timely Delivery:* the receipt of an ILL item:
    - at the same time as all other publications required for a research project or at any time in the research process.
- *Satisfaction with ILL outcome:*
    - A user's view that an ILL request was more valuable than expected.

- A user's view that an ILL request was more relevant and useful than expected.
- A user's intention to cite an ILL request in his/her own publication/s.
- A user's view, following close inspection, that an ILL request contributed to the quality of his/her own research, without which it would suffer.

3.2.2 Population

The population of the study was drawn from two of the seven institutions of higher learning in Israel, a large urban university and an institute for research in science and technology. The University of Haifa specializes in the social sciences, humanities and welfare studies whereas the Technion Israel Institute of Technology specializes in science, technology, engineering and medicine. Together they cover a broad spectrum of research disciplines. The University of Haifa has six faculties and five schools with 83 departments, of which 26 have doctoral programs. In 2007 there were 17,200 registered students of which 902 were doctoral students and 1,300 faculty members. The Technion has 18 faculties with 65 doctoral programs. In 2006, there were 12,500 registered students of which 927 were pursuing doctoral degrees and 1010 faculty members. The population of the current study was drawn from faculty members and doctoral students from the following six faculties (in order of size) at the University of Haifa: social sciences, humanities, social welfare and health studies, education, law, and sciences and science education, and the graduate school of business and from the 18 faculties at the Technion Israel Institute of Technology: Aerospace Engineering, Architecture and Town Planning, Biology Biomedical Engineering, Biotechnology and Food Engineering, Chemical Engineering, Chemistry, Civil and Environmental Engineering, Computer Science, Education in

Technology and Science, Electrical Engineering, Humanities and Arts, Industrial Engineering and Management, Materials Engineering, Mathematics, Mechanical, Engineering, Medicine, and Physics.

3.2.3 Sampling

In order to ensure that all faculties were represented in the study, cluster random sampling was used to achieve a representative sample of 20% of the population. A list of all faculty and doctoral students with e-mails was obtained from the University of Haifa library's readers' file. Faculty members and doctoral students were then divided into clusters based on their departmental affiliation and each fifth person was chosen for the sample. In departments with fewer than five doctoral students, the first one was chosen. In total, 330 questionnaires were distributed at the university to 210 faculty members and 120 doctoral students. The sample consisted of 49% of males and 51% of females.

The sample of faculty and doctoral students from the Technion was created in a different manner from the sample at the University, as the Technion was not willing to provide a list of faculty and doctoral students in order to conduct cluster sampling. As a result, the sample of faculty was built by accessing the 18 departmental web sites and sending the questionnaire by e-mail to the fifth faculty member on each site. In total, 190 questionnaires were sent to faculty members by e-mail. As most departmental web sites did not contain lists of doctoral students and as the researcher was unable to obtain a list of the names and e-mails of all the registered doctoral students in order to create a sample, the questionnaire was sent by e-mail to all 900 doctoral students by the Graduate School. In total, 1090 questionnaires were distributed at the Technion to 190 faculty members and 900 doctoral students. Because the questionnaire was distributed to the whole population of doctoral

students, and not to a sample - as intended, it was not possible to determine how many males and females received the questionnaire at the Technion. However, based on data from the Technion, that there are more male faculty members and doctoral students than female, it can be assumed that more males than females responded to the current questionnaire.

The total sample consisted of 1420 questionnaires, with 23% from the University of Haifa (*N*=330) and 77% from the Technion (*N*=1090). The total response rate consisted of 313 responses, with 37% from the University and 18% from the Technion.

3.2.4 Development of the Instrument

As no suitable research instrument existed, a five-part web-based questionnaire was specially designed for the current study: The first section on styles of information-seeking was adapted from Heinstrom's *Questionnaire about Information Behavior* (see Appendix B) and aimed to elicit one of the three styles of information-seeking. The other four sections consisted of questions on frequency of library use, demographics, productivity, and reasons for non-use of ILL and were compiled based on the pertinent issues that were raised in the literature.

3.2.4.1 Reasons for Choice of Instrument

The first reason for choosing a web-based questionnaire as the research instrument was an attempt to achieve a high response rate. As the sample consisted of faculty and doctoral students who all have free and easy access to institutional e-mail accounts, it was hoped that they would be more predisposed to respond to a web-based questionnaire than a print one. Moreover, studies on Internet surveying show that web-surveys receive particularly high response rates when conducted on

populations from the same institution (Schonlau, 2002) and that response rates for web-based questionnaires were similar to print questionnaires when both were preceded by advanced notification and reminders (Kaplowitz, Hadlock, & Levine, 2004). Another reason for choosing the web-based questionnaire was because it is a cheap, fast and efficient way of distributing a large number of questionnaires. The final reason was that it allows easy recording of data such as the number of responses received per day and response time and, most importantly, it allows the responses to the questions to be automatically transferred to statistical software packages such as *Excel, SAS* or *SPSS* for data analysis, thereby reducing processing time and error during data input.

3.2.4.2 Pilot Test

The pilot test served several purposes: (a) it ensured that faculty and doctoral were willing and able to respond according to the instructions given, (b) it uncovered a problem of lack of clarity on one or two questions and it revealed that some people found the demographic questions at the beginning of the questionnaire to be off-putting, and (c) it ensured that the link to the questionnaire was accessible and that hard copy alternatives were available when subjects encountered technical problems or found the electronic format daunting.

The pilot test was conducted on 10 faculty members and five doctoral students at the University of Haifa. Thirteen of the respondents were regular ILL users and two were non-users. Nine people were from the humanities, five were from the social sciences and one was from the sciences. Eight were male and seven were female. Twelve responses were received electronically, one person sent a completed questionnaire by internal mail, and one person arranged a personal interview to provide her comments about the questionnaire itself, but not to respond to it. One non-

user did not respond. All thirteen respondents sent the researcher their comments on the questionnaire by e-mail as requested on the cover letter. Their comments were transcribed and the Hebrew was translated into English. Table 1 below show the most helpful comments about the questionnaire.

Table 1 *Participants' Comments on the Format and Content of the Pilot Test*

	Quotation
Format	Once you begin to scroll down you are no longer able to see the headings "agree", "disagree", etc. thus you have to either memorize the criteria or scroll up and down constantly. (2/6/07)
Content	I think that the first part of your questionnaire (about productivity/tenure) is too competitive and personal in its approach, and personally, I found it irrelevant, and not very inviting to cooperate. (2/6/07)
	Questions such as "I don't use interlibrary-loan-services because I find it too complicated etc." may give back dishonest answers. Can you think of one academic who would be willing to admit he finds any library service too complicated for him to handle? (2/6/07)
	I think the main factor influencing ILL use is academic discipline, as there are huge differences between humanities and sciences. In my opinion, ILL will be in continual demand in the humanities as long as there is no wide-spread digitization, but less so in the sciences and social sciences, where electronic items are widely available. Also, in the sciences, there are often many other suitable alternatives for obtaining a particular item, which is not necessarily the case in the humanities. In effect, the need for ILL is a function of the need for a specific item, which is a function of the discipline to which it belongs. (5/06/07)
	The questions about frequency of library use don't tell you anything - the fact that someone comes to the library once a week is meaningless. You could ask "in the last year, how many books did you borrow/articles did you download/photocopy?" using a Lickert scale. (5/06/07)
	The question "I frequently use the Internet in addition to electronic and print library sources" is confusing because each person interprets the word Internet differently - you could say something like "I frequently use Internet search engines such as Google". (5/06/07)
	Most faculty will not seek help from reference librarians. (5/06/07)

The main change adopted as a result of these comments was a refinement of question-wording and the placement of the demographic questions at the end of the questionnaire. The question "I do not use ILL because it is too complicated to order via ILL" was removed on the assumption that few researchers would be willing to admit to finding any library service too complicated, and two questions "During the past year, how many articles did you download or photocopy?" and "During the past year, how many books did you borrow?" were added to test frequency of library use.

In addition, the scale of responses “strongly agree” to “strongly disagree” was added at the end of the questionnaire to prevent unnecessary scrolling up and down if respondents forgot the order of the scale.

3.2.4.3 Reliability and Validity

Due to the small size of the pilot sample, statistical tests were only performed on the variable *Satisfaction with ILL Outcomes*. However, reliability was checked on a number of variables using the *Alpha Cronbach* test of reliability. First the variables *Satisfaction*, *Secondary Information Sources* and *Indicative/Informative Titles* were checked and found to have high alpha levels. Next, the reliability, or internal consistency, of each of the three styles of information-seeking was checked and found to have sufficiently high Alpha scores without the need to remove any questions. The validity of the three styles of information-seeking has already been corroborated based on the factor analysis conducted by Heinstrom (2002). In addition, the responses to the pilot of the 12 experts confirmed that all 69 questions had content validity. Construct validity was also corroborated because the results indicated that there were significant relationships between the perceived benefits of the factors tested and satisfaction with ILL outcomes.

3.2.4.4 Description of the Questionnaire

As no similar studies have been carried out on the differences between users and non-users of ILL or on the perceived benefits of certain factors on satisfaction with ILL outcomes, a questionnaire in Hebrew was complied specially for the current study. Although all Israeli faculty and doctoral students read and write English fluently, the questionnaire was written in Hebrew in an attempt to increase the response rate and to appear more inviting.

The questionnaire consisted of 69 questions and was divided into five main sections. The first part consisted of 46 five-point Lickert-style statements which were ranked from 1-5 with 1 indicating “strong disagreement” and 5 indicating “strong agreement”. Thirty-one questions were designed to elicit one of three possible styles of information-seeking based on a modified version of Heinstrom’s *Questionnaire about Information Behavior* which was translated from Swedish. Questions 32-46 attempted to elicit the perceived benefits of consulting secondary information, sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery on satisfaction with ILL outcomes.

The second part of the questionnaire consisted of four questions on productivity, such as the number of books and articles published, the number of conference presentations given and the number of articles peer-reviewed. The third part consisted of three questions on the amount of library and ILL use and the fourth part consisted of nine Lickert style statements on the possible reasons for non-use with space for free-text comments. The final part of the questionnaire consisted of six demographic questions. A copy of the English translation of the questionnaire appears in Appendix A.

3.3 Data Collection

The questionnaire was sent as a link by e-mail during June 2007 to 210 faculty members and 120 doctoral students at the University of Haifa. A cover letter in Hebrew was sent to participants which informed them that the questionnaire was designed to check their style of information-seeking and their ILL use, that the research was being conducted as part of a doctoral dissertation, that they were among a randomly-chosen sample from each department, and that the questionnaire would take about seven minutes to complete. Additionally, they were told that all details

they provided would be used for statistical analyses only and would be kept anonymous and confidential. They were also told that if they were interested in receiving a summary of the main findings of the study in the future, or if they wanted a copy if the questionnaire in English, they should send a request by e-mail. The researcher identified herself as a doctoral student in Information Science at Bar-Ilan University and Head of the Interlibrary Loan Department at the University of Haifa, so that her credentials were evident and so that the recipients of the e-mail message would not suspect that it was junk mail. The subject line of the e-mail was sent the first time in Hebrew and subsequent times in English after e-mail messages were received by potential respondents stating that the message was incomprehensible. In addition, questionnaires were sent as Word attachments in English by e-mail to people who requested it. Responses were also sent by e-mail to people who sent general comments or good luck messages about the research in order to encourage them to continue responding to future web questionnaires that they might receive and to personally acknowledge their contribution.

The instructions on the questionnaire itself asked respondents to choose one option for each statement which best reflected their opinion and to skip statements that were irrelevant. After completing the questionnaire an automatic thank-you message appeared on the screen. Responses arrived as anonymous messages directly to the researcher's e-mail account, with a backup copy being saved automatically on the library's server.

The first reminder and thank-you letter to people who had already responded were sent two days after the first e-mail with the link to the questionnaire. The second reminder and thank-you letter were sent eight days later to all members of the sample.

Unfortunately, as the questionnaire was anonymous, it was not possible to isolate the non-respondents, so both respondents and non-respondents received the reminders.

At the beginning of July 2007, the link to the questionnaire was sent by e-mail to the sample of 190 faculty members at the Technion and to all 900 doctoral students. The first reminder and thank-you letter to faculty was sent two days after the first e-mail with the link to the questionnaire and the second reminder and thank-you letter were sent eight days later. Reminders were not sent to doctoral students at the Technion due to the Graduate School's stipulation that they would send the questionnaire once only to all doctoral students at the Technion on the researcher's behalf, but would not send reminders. At both institutions, nearly 80% of the total responses received arrived within the first three days following distribution while the remainder arrived during the following ten days. No deadline was given for responding but participants were told of the importance of the research and asked to respond as soon as possible. The questionnaire itself was placed on the library server which was freely accessible to anyone who had the link. In order not to deter people from responding, a decision was made not to require any form of identification prior to completing the questionnaire. As the questionnaire was not retrievable via Internet search engines it did not seem likely that any non-eligible person who had not received the link by e-mail would accidentally respond to the questionnaire. Each completed questionnaire arrived as an anonymous e-mail message, using *Apache* software version 2.0, to the researcher's personal e-mail account and another one was stored on the library server as a backup copy. The responses of each completed questionnaire were copied from the e-mail and pasted to an *Excel* worksheet and the comments on the reasons for non-use of ILL were translated to English and saved as a *Word* file.

3.3.1 Response Rate

Of the 1420 questionnaires that were sent to both institutions, 313 usable responses were received - 121 from the University and 192 from the Technion which represented 6% of the population at the University and 10% of the population at the Technion. The combined response rate was 22% - 37% at the university and 18% at the Technion. The response rate from the Technion was relatively low due to the fact that the questionnaire was sent to the whole population of 900 doctoral students and not to a representative sample. In addition, the e-mail messages with the link to the questionnaire which were sent to faculty appeared without any official authorization from the Technion. The response rate at the university may also have been higher than at the Technion as some faculty and doctoral students were personally-acquainted with the university ILL department and may have felt obliged to respond due to the ongoing ILL service they receive. Another factor affecting response rates is the timing of the questionnaire distribution. As the questionnaires were distributed during the last two weeks of the spring semester, which for some faculty and doctoral students is the busiest time of the year, the response rate may have been slightly lower than if it had been distributed in the middle of the semester. However, it was expected that delaying distribution until the summer vacation would have produced an even lower response rate as many faculty leave the country for sabbaticals and conferences.

3.3.1.1 Limitations

One of the limitations of the current study was the relatively low response rate which may have affected the generalizability of the findings. However, it is worth noting that recent research has shown that response rates to e-mail and postal surveys in academic environments are declining and one study has shown that response rates to e-mail surveys dropped from 37% in 1998 to 24% in 2000 (Sheehan, 2001). The

overall response rate in the current study was 22% although at the University (*N*=37%, and with pilot *N*=41%) it was almost double that of the Technion (*N*=18%). Possible reasons for the low response rate are: (a) the questionnaire was sent to all 900 doctoral students at the Technion (for reasons previously mentioned in chapter 3.23) and not to a representative sample, (b) the questionnaire was sent to all faculty members including some who were not currently conducting research, (c) the proliferation of web-based e-mail surveying in academia which may have caused information overload and an unwillingness to respond to unsolicited e-mail among some potential respondents, and (d) the high prevalence of non-users of ILL in many academic institutions. Recent data at the University of Haifa has shown that as many as 87% of faculty and 83% of doctoral students did not use ILL in 2006 and these non-users are quite possibly the very people who did not respond to the current questionnaire. As a consequence, the results may have been biased towards the responses of users of ILL as the subject matter was familiar to them and may have interested them. Also, as the self-administered web-based questionnaire is a research method which is often-used by social scientists and less so by humanists and scientists, it may have been more appealing to social scientists. In addition, as respondents were informed that the study was being conducted as part of a doctoral dissertation, doctoral students may have been more sympathetic and may have been more inclined to respond. Finally, people who are at ease with the Internet and with computer-assisted communication in general, or who enjoy responding to questionnaires, may also have been more inclined to respond to the questionnaire.

3.4 Data Analysis

The data were transferred from *Excel* software to *SAS*® version 9.1 for analysis one month after the questionnaire was distributed. Two responses received

after data analysis had begun were discarded. Initially, the questionnaire results were checked for duplicate responses and identical responses that were received within a few minutes of each other were removed on the assumption that the submit button had been unintentionally pressed twice. Next, descriptive statistics were generated on age, gender, mother-tongue, seniority, rank, academic discipline and institutional affiliation, in order to describe the sample.

In order to test the differences between users and non-users of ILL according to frequency of library use, gender, mother-tongue, rank, discipline and productivity, *Chi Square* statistical tests were performed. In addition, the *Cochran-Armitage Trend Test* was performed on insignificant results to uncover significant trends. Descriptive statistics were generated in order to establish the main reasons for non-use of ILL. In order to ascertain whether there were different reasons for non-use of ILL at the university and at the Technion, a *Chi Square* Test was performed. To test the differences among users and non-users of ILL according to styles of information-seeking *Independent T-Tests* were performed and to test the differences according to age and seniority *Wilcoxon Two-Sample Test* was performed.

In order to test the extent to which the perceived benefits of consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery are related to satisfaction with ILL outcomes *Pearson Correlation Coefficient* and *Spearman Rank Correlation Coefficient Tests* were performed.

3.5 Summary

A web-based questionnaire was compiled and distributed to 1420 faculty and doctoral students at the University of Haifa and at the Technion by e-mail over a

period of one month. A total response rate of 22% was achieved. Results were transferred to *Excel* and *SAS* software and statistical tests were performed.

CHAPTER FOUR: RESULTS

This study was concerned with two main issues: (a) the differences between users and non-users of ILL, and (b) the extent to which the perceived benefits of consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery were related to satisfaction with ILL outcomes. In order to answer the research questions survey research was employed.

4.1 Description of Sample

A total of 313 usable responses were received. Fifty-two percent were from males and 48% were from females. The mean age was 41 years, with ages ranging from 24 to 79 years of age. The mean amount of seniority was 11 years, with seniority ranging from 1 to 45 years.

Table 2 below illustrates the distribution of respondents by use of ILL, gender, rank and institution.

Table 2 *Distribution of Responses by Use of ILL, Gender, Rank and Institution*

Use of ILL	**Users**	**Non-Users**	**Total**
	125 (42%)	176 (58%)	301 (100%)
Gender	**Male**	**Female**	
	154 (52%)	141 (48%)	295 (100%)
Rank	**Doctoral students**	**Faculty**	
	195 (69%)	89 (31%)	284 (100%)
Institution	**University**	**Technion**	
	111 (37%)	190 (63%)	301 (100%)

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 2, 58% of respondents were non-users of ILL (*N*=176), 52% were male (*N*=154), 69% were doctoral (*N*=195), and 63% were affiliated with the Technion (*N*=190). Likewise, 42% were users of ILL (*N*=125), 48% were female (*N*=141), 31% were faculty members (*N*=189), and 37% were affiliated with the

University of Haifa (*N*=111). Figures 2-5 below show the distribution of responses by mother-tongue and academic discipline.

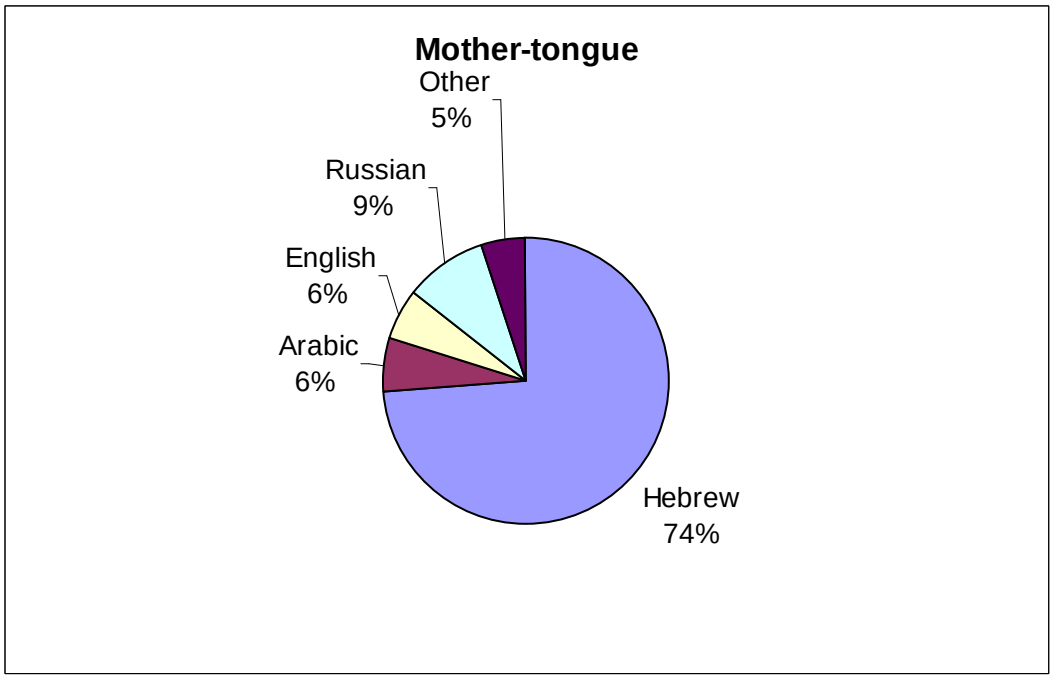


Figure 2. Percentage responses by mother-tongue (*N*=299).

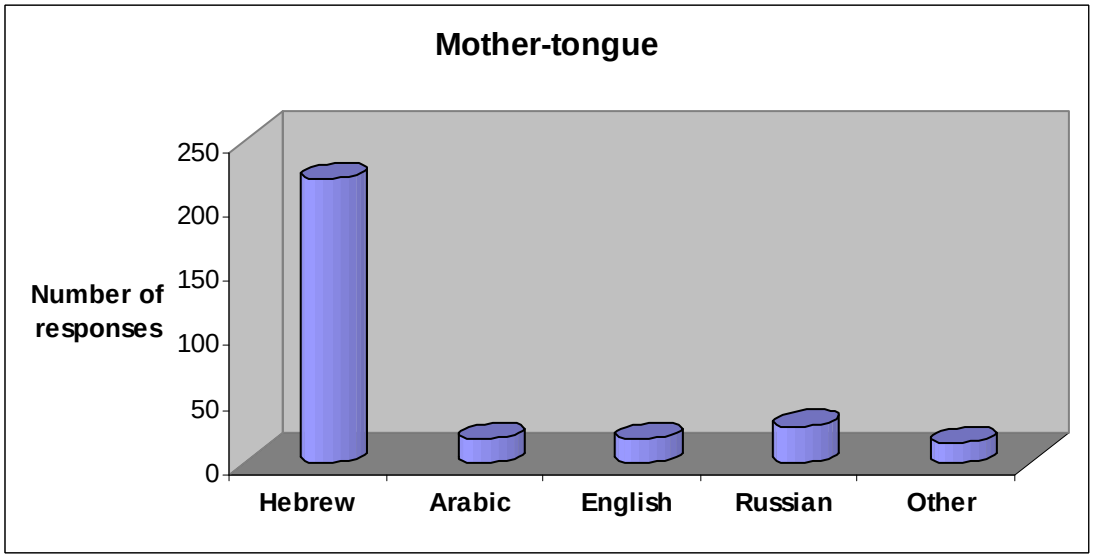


Figure 3. Number of responses by mother-tongue (*N*=299).

As shown in Figures 1 and 2, the majority of respondents were native Hebrew speakers (*N*=220, 74%).

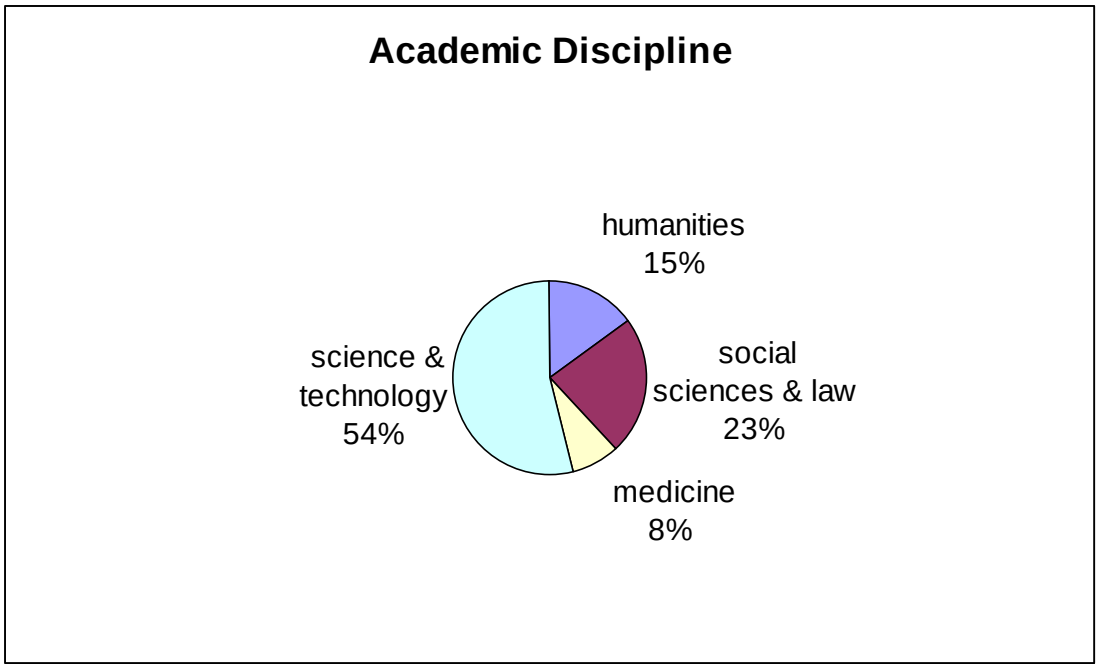


Figure 4. Percentage responses by academic discipline (*N*=313).

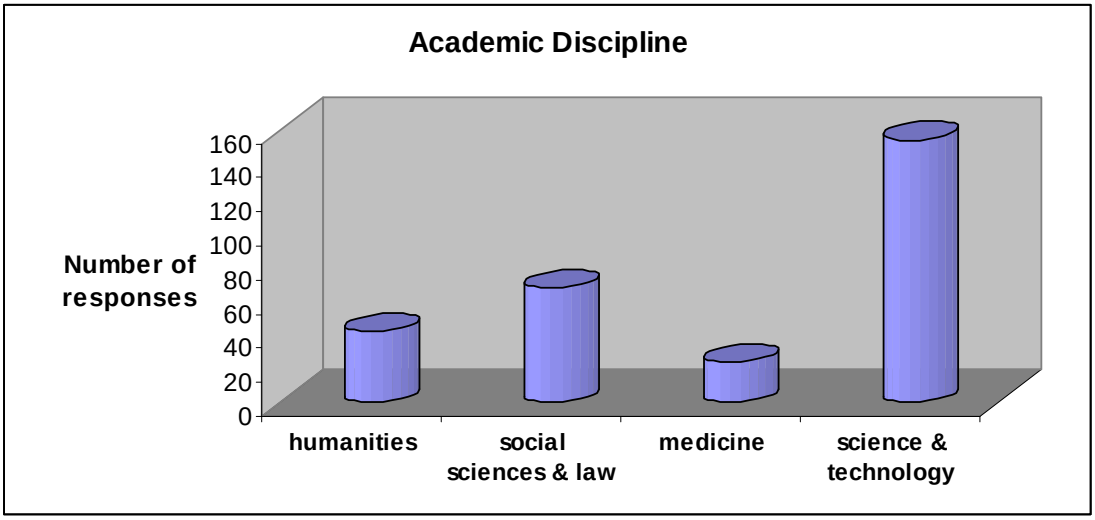


Figure 5. Number of responses by academic discipline (*N*=313).

As shown in Figures 3 and 4, most of the respondents were from science and technology (*N*=154, 54%), and the remainder were from social sciences & law (*N*=67, 23%) and humanities (*N*=42, 15%).

There were also differences in the distribution by rank at the two institutions. At the University of Haifa the breakdown by rank was almost equally divided among faculty and doctoral students, whereas at the Technion, there were many more doctoral students than faculty. Figure 6 illustrates the percentage distribution by rank at each institution and the combined distribution.

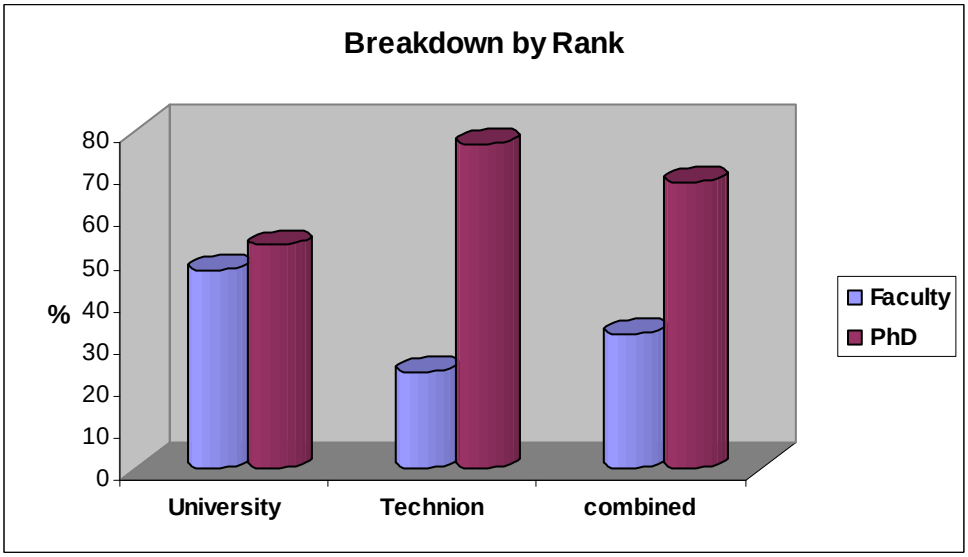


Figure 6. Distribution by rank

(*N*=292)

There were also differences in the distribution of users and non-users of ILL at the two institutions. At the University of Haifa the distribution by users/non-users of ILL was almost equally divided, whereas at the Technion there were more non-users than users of ILL. Figure 7 illustrates the percentage distribution of use/non-use of ILL at each institution and the combined distribution.

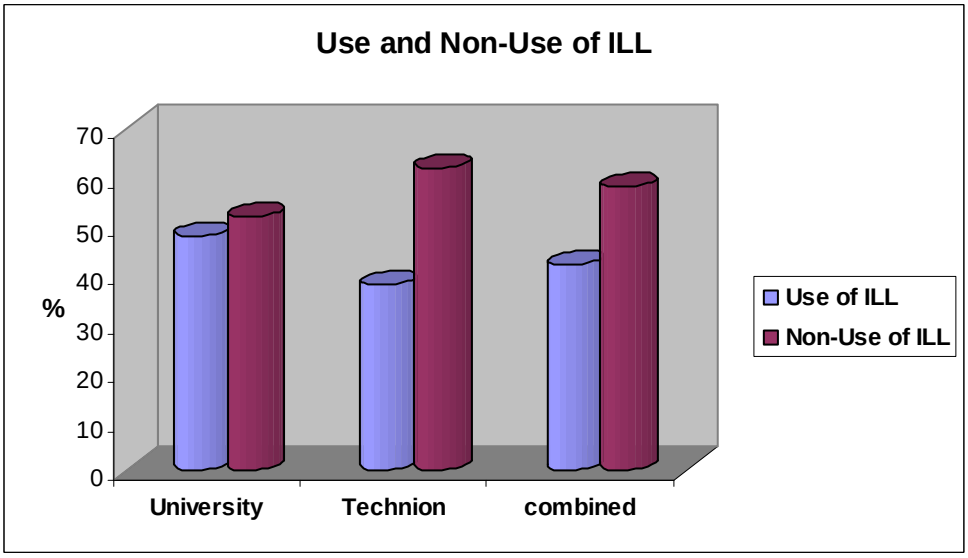


Figure 7. Distribution by use/non-use of ILL

(*N*=301)

4.2 Testing the Differences between Users and Non-Users of ILL

The first research question asked whether there were differences between users and non-users of ILL according to: (a) frequency of library use, (b) style of information-seeking, (c) demographics, and (d) academic profile.

4.2.1 Frequency of Library Use

The variable *Frequency of Library Use* was divided into four parts: (a) number of articles photocopied, (b) number of books borrowed, (c) frequency of library database usage within library, and (d) frequency of library database usage at home/office.

4.2.1.1 Number of Articles Photocopied/Downloaded and Use/Non-Use of ILL

In order to test whether there was a relationship between the number of articles photocopied/downloaded in the past year and use/non-use of ILL in the past

year, a *Chi Square Test* was performed on questions 51 and 53, whose results appear in Table 3 below.

Table 3 *Number of Articles Photocopied/Downloaded and Use/Non-Use of ILL (N=297)*

Number of articles photocopied	**Use of ILL N**	**%**	**Non-use of ILL N**	**%**	**$\chi^2(3)$**
0-10	5	4	9	5	
11-50	57	46	76	44	
51-100	42	34	57	33	
100+	19	16	32	18	
Total	**123**	**100**	**174**	**100**	0.71

*$p < .05$. **$p < .01$. ***$p < .001$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 3, there was no significant relationship between the number of articles photocopied/downloaded and use/non-use of ILL ($\chi^2(3, N=297) = 0.71$, $p = 0.87$). Among users and non-users of ILL the percentage photocopying/downloading of articles was equal.

4.2.1.2 Number of Books Borrowed and Use/Non-Use of ILL

In order to test whether there was a relationship between the number of books borrowed in the past year and use/non-use of ILL in the past year, a *Chi Square Test* was performed on questions 52 and 53, whose results appear in Table 4 below.

Table 4 *Number of Books Borrowed and Use/Non-Use of ILL (N=299)*

Number of books borrowed	**Use of ILL N**	**%**	**Non-use of ILL N**	**%**	**$\chi^2(1)$**
0	9	7	29	17	
1-100+	115	93	146	83	
Total	**124**	**100**	**175**	**100**	5.67**

*$p < .05$. **$p < .01$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 4, there was a statistically significant relationship between the number of books borrowed and the use of ILL ($\chi^2(1, N=299) = 5.67, p = 0.01$). Among users of ILL, there was relatively more book borrowing (93%) than among non-users of ILL (83%). This finding suggests that users of ILL borrow books more than non-users of ILL.

As there was a significant relationship between library use, i.e., article photocopying/downloading and book borrowing, and ILL use, it was decided to conduct a test to check if frequent library users were also frequent ILL users. In order to do this *Spearman Correlation Coefficient* was performed on questions, 51, 52, 53 whose results appear in Table 5 below.

Table 5 *Library Use and Use of ILL*
(N=301)

	Mean	Use of ILL
Library Use		
articles photocopied	3.62	-0.00
books borrowed	2.39	0.09

As shown in Table 5, no statistically significant relationship was found between frequent library use (article and book use) and frequent ILL use during the past year.

4.2.1.3 Use of Library Databases within the Library and Use/Non-Use of ILL

In order to test whether there was a relationship between the frequency of use of the library databases within the library and use/non-use of ILL, a *Chi Square Test* was performed on questions 3 and 53, whose results appear in Table 6 below.

Table 6 *Use of Library Databases within Library and Use/Non-Use of ILL*
(N=298)

Use of library databases within library	Use of ILL		Non-use of ILL		$\chi^2(1)$
	N	%	N	%	
Disagree	57	46	110	64	
Agree	68	54	63	36	
Total	**125**	**100**	**173**	**100**	9.53***

*$p < .05$. **$p < .01$. ***$p < .001$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 6, there was a significant relationship between use of library databases within the library and use/non-use of ILL ($\chi^2(1, N=298) = 9.53$, $p = 0.002$). More users of ILL (54%) accessed the library databases within the library than non-users of ILL (36%). These findings show that users of ILL use library databases within the library more than non-users of ILL. It should be noted that for the variable *use of databases within the library*, the responses for “strongly agree”, “agree” and

"somewhat agree" were combined to form the new variable "agree". Likewise, the responses for "strongly disagree" and "disagree" were combined to form the new variable "disagree". When the test was performed on all five components of the variable, no statistically significant relationship was found.

4.2.1.4 Use of Library Databases from Home/Office and Use/Non-Use of ILL

In order to test whether there was a relationship between the use of library databases from home/office and use/non-use of ILL, a *Chi Square Test* was performed whose on questions 6 and 53, whose results appear in Table 7 below.

Table 7 *Use of Library Databases at Home/Office and Use/Non-Use of ILL (N=300)*

Use of library databases at home/office	**Use of ILL**		**Non-use of ILL**		$\chi^2(1)$
	N	**%**	**N**	**%**	
Disagree	17	13	42	24	
Agree	108	86	133	76	
Total	**125**	**100**	**175**	**100**	4.99*

*$p < .05$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 7, there was a statistically significant relationship between the use of library databases at home/office and use/non-use of ILL ($\chi^2(1, N=300) = 4.99$, $p = 0.02$). More users of ILL (86%) accessed the library databases from their home/office than non-users of ILL (76%). It should be noted that for the variable *use of databases within the library*, the responses for "strongly agree", "agree" and "somewhat agree" were combined to form the new variable "agree". Likewise, the responses for "strongly disagree" and "disagree" were combined to form the new variable "disagree". When the test was performed on all five components of the variable, no statistically significant relationship was found.

These findings clearly show that users of ILL used library databases from their home or office more than non-users of ILL.

4.2.1.5 Summary of Findings on Frequency of Library Use

The findings on *Frequency of Library Use* showed that there was a significant relationship between book-borrowing, library database usage - within the library and at home/office - and use/non-use of ILL. However, there was no significant relationship between article photocopying and use/non-use of ILL.

4.2.2 Style of Information-Seeking

The variable of *Style of Information-Seeking* was composed of 31 questions designed to elicit one of following styles of information-seeking (a) *Fast Surfer*, (b) *Broad Scanner*, and (c) *Deep Diver*.

In order to test whether there was a relationship between style of information-seeking and use/non-use of ILL, an *Independent Samples T-Test* was performed on questions 1-31 and 53, whose results appear in Table 8 below.

Table 8 *Style of Information-Seeking and Use/Non-Use of ILL*

	Use of ILL (N=125)		**Non-use of ILL (N=176)**		**T(299)**
	M	**SD**	**M**	**SD**	
Fast Surfer	2.45	0.54	2.63	0.50	2.92**
Broad Scanner	3.93	0.53	3.84	0.56	-1.53
Deep Diver	3.67	0.52	3.33	0.50	-5.71***

*$p < .05$. **$p < .01$. ***$p < .001$.

Note: Scale 1-5.

As shown in Table 8, there was a statistically significant relationship between the following two styles of information-seeking and use/non-use of ILL (a) *Fast Surfer* = ($t(299)=2.92$, $p<.01$), and (b) *Deep Diver* = ($t(299)=-5.71$, $p<.001$). For the variable *Fast Surfer*, reliability was checked using *Alpha Cronbach*, and question 11 "I prefer publications that are written in my mother-tongue" was removed resulting in an Alpha of 0.69. For the variable *Deep Diver* no questions were removed as the Alpha was 0.72. For the variable *Fast Surfer*, the mean score was 2.63 for non-use of ILL and 2.45 for use of ILL 2.45 which suggests that the *Fast Surfer* style of information-seeking is associated more with non-use than use of ILL. Likewise, for the variable *Deep Diver*, the mean score was 3.67 for use of ILL and 3.33 for non-use of ILL which suggests that *Deep Diver* style of information-seeking is associated more with use of ILL than non-use.

There was no statistically significant relationship between the variable *Broad Scanner* and user/non-user of ILL even after the following two questions were removed to increase reliability to 0.5; question 1, "I frequently use Google and other

free Internet sources for academic purposes" and question 6, "I frequently use library databases from my home or office".

4.2.2.1 Summary of Findings on Styles of Information-Seeking

The findings on *Style of Information-Seeking* showed that there was a statistically significant relationship between *Fast Surfer* and *Deep Diver* and use/non-use of ILL. There was no statistically significant relationship between *Broad Scanner* and use/non-use of ILL.

4.2.3 Demographics

The variable *Demographics* was divided onto three parts: (a) age, (b) gender, and (c) mother-tongue.

4.2.3.1 Age and Use/Non-Use of ILL

In order to test if there was a relationship between age and use/non-use of ILL a *Wilcoxon Two-Sample Test* was performed on questions 64 and 53, whose results are displayed in Table 9 below. In the questionnaire respondents were asked to give their date of birth, this date was then removed from the current year 2007 to give their age. The mean age was then calculated by adding all the ages and then dividing by the number of respondents, resulting in a mean age of 43.

Table 9 *Age and Use/Non-Use of ILL*
(*N*=274)

	Use of ILL (N=117,75)		**Non-use of ILL (N=157,86)**		**Z**
	M	**SD**	**M**	**SD**	
Age	43	11.95	39	10.7	2.77**

*$p < .05$. **$p < .01$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 9, there was a statistically significant relationship between age and use of ILL. The mean age of users of ILL was higher (43) than the mean age of non-users of ILL (39). The median age of users of ILL was 40 and of non-users of ILL it was 35. The youngest person in the sample was 24 and the oldest was 79.

4.2.3.2 Gender and Use/Non-Use of ILL

In order to test whether there was a relationship between gender and use/non-use of ILL, a *Chi Square* Test was performed on questions 65 and 53, whose results appear in Table 10 below.

Table 10 *Gender and Use/Non-Use of ILL*
(N=295)

Gender	**Use of ILL**		**Non-use of ILL**		$\chi^2(1)$
	N	**%**	**N**	**%**	
Male	60	48	94	55	
Female	64	52	77	45	
Total	**124**	**100**	**171**	**100**	1.25

*$p < .05$. **$p < .01$. ***$p < .001$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 10, there was no statistically significant relationship between gender and use/non-use of ILL. Males and females were equally users and non-users of ILL.

4.2.3.3 Mother-tongue and Use/Non-Use of ILL

In order to test whether there was a relationship between mother-tongue and use/non-use of ILL, a *Chi Square* Test was performed on questions 66 and 53, whose results are displayed in Table 11 below.

Table 11 *Mother-Tongue and Use/Non-Use of ILL (N=299)*

Mother-tongue	Use of ILL N	%	Non-use of ILL N	%	$\chi^2(1)$
Hebrew	89	72	131	75	
Not Hebrew	35	28	44	25	
Total	**124**	**100**	**175**	**100**	0.35

*$p < .05$. **$p < .01$. ***$p < .001$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 11, there was no statistically significant relationship between mother-tongue and use/non-use of ILL. Hebrew and non-Hebrew speakers were equally users and non-users of ILL.

4.2.3.4 Summary of Findings on Demographics

The findings on *Demographics* showed that there was significant relationship between age and use/non-use of ILL. There were no statistically significant relationships between gender and mother-tongue and use/non use of ILL.

4.2.4 Academic Profile

The variable *Academic Profile* was divided into four parts: (a) seniority, (b) tenure/promotion status, (c) productivity level, and (d) academic discipline.

4.2.4.1 Seniority and Use/Non-Use of ILL

In order to test whether there was a relationship between seniority and use and non-use of ILL, a *Wilcoxon Two-Sample Test* was performed on questions 67 and 53, whose results are displayed in Table 12 below.

Table 12 *Seniority and Use/Non-Use of ILL (in years)*
(*N*=161)

	Use of ILL (N=117,75)		Non-use of ILL (N=157,86)		Z
	M	SD	M	SD	
Seniority	12	9.35	10	9.94	2.44*

*$p < .05$.

Note: N≠313 as some respondents did not provide data for these questions.

The findings in Table 12 show that there was a statistically significant relationship between seniority and use/non-use of ILL in that users of ILL tended to be more senior than non-users of ILL.

4.2.4.2 Tenure/Promotion Status and Use/Non-Use of ILL

In order to test whether there was a relationship between tenure/promotion status and use/non-use of ILL a *Chi Square* Test was performed on questions 68 and 53. Table 13 below shows that there was no significant relationship between tenure status and use/non-use of ILL or between promotion status and use/non-use of ILL

Table 13 *Tenure/Promotion Status and Use/Non-Use of ILL*
(N=284)

Tenure/promotion status	Use of ILL		Non-use of ILL		$\chi^2(2)$
	N	%	N	%	
Doctoral students	69	60	126	75	
Non-tenured faculty	27	23	24	14	
Tenured faculty seeking promotion	14	12	15	9	
Tenured faculty not seeking promotion	6	5	3	2	
Total	**116**	**100**	**168**	**100**	0.93

Note: N≠313 as some respondents did not provide data for these questions.

However, there was a statistically significant relationship between rank and use/non-use of ILL which appears in Table 14 below.

Table 14 *Rank and Use/Non-Use of ILL (N=284)*

Rank	Use of ILL N	Non-use of ILL N	Total	$\chi^2(2)$
Doctoral students	69	126	**195**	
Faculty	47	42	**89**	
Total	**116**	**168**	**284**	7.68*

*$p < .05$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 14, among faculty, the majority had used ILL in the past year, whereas among doctoral students, the majority had not. This indicates that use of ILL is associated with having a higher rank in the institution.

4.2.4.3 Productivity Level and Use/Non-Use of ILL

The variable *Productivity* was divided into four parts: (a) the number of articles published, (b) the number of books published, (c) the number of conference presentations given, and (d) the number of articles that were peer-reviewed.

4.2.4.3.1 Publication of Articles and Use/Non-Use of ILL

In order to test whether there was a relationship between the number of articles published and use/non-use of ILL, a *Chi Square* Test was performed on questions 47 and 53, whose results appear in Table 15 below.

Table 15 *Publication of Articles and Use/Non-Use of ILL Among Doctoral Students and Faculty*
(N=294)

Publication of Articles	Use of ILL		Non-use of ILL		$\chi^2(2)$
	N	%	N	%	
0	42	34	58	34	
1-2	41	34	79	46	
3+	39	32	35	20	
Total	**122**	**100**	**172**	**100**	6.49*

*$p < .05$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 15, there was a statistically significant relationship between the number of articles published and use of ILL. Users of ILL published more articles than non-users of ILL. Thirty-two percent of users of ILL published three or more articles in the preceding year, whereas only 20% of non-users of ILL published three or more articles in the preceding year. However, when the *Chi Square* Test was run separately on faculty to test if there was a relationship between the number of articles published in the preceding year and use/non-use of ILL, no significant relationship was found (as shown in Table 16 below), possibly due to the fact that the sample consisted of many more doctoral students (*N*=195) than faculty (*N*=89).

Table 16 *Publication of Articles and Use/Non-Use of ILL Among Faculty*
(N=87)

Publication of Articles	Use of ILL		Non-use of ILL		$\chi^2(2)$
	N	%	N	%	
0	3	6	4	10	
1-2	13	28	16	40	
3+	31	66	20	50	
Total	**47**	**100**	**40**	**100**	2.27

Note: N≠89 as some respondents did not provide data for these questions.

4.2.4.3.2 Publication of Books and Use/Non-Use of ILL

In order to test whether there was a relationship between the number of books published and use/non-use of ILL, a *Chi Square* Test was performed on questions 48 and 53, whose results appear in Table 17 below.

Table 17 *Publication of Books and Use/Non-Use of ILL Among Doctoral Students and Faculty*
(N=283)

Publication of books	**Use of ILL**		**Non-Use of ILL**		$\chi^2(1)$
	N	**%**	**N**	**%**	
0	103	88	159	96	
1+	14	12	7	4	
Total	**117**	**100**	**166**	**100**	5.99*

*$p < .05$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 17, there was a statistically significant relationship between the publication of books and use of ILL. Users of ILL published more books than non-users of ILL. Twelve percent of users of ILL published at least one book in the preceding year, while only 4% of non-users of ILL published at least one book in the preceding year. When the *Chi Square* test was run separately on faculty the significant relationship between book publication and use of ILL remained - as shown in Table 18 below.

Table 18 *Publication of Books and Use/Non-Use of ILL Among Faculty*
(N=81)

Publication of books	**Use of ILL**		**Non-Use of ILL**		$\chi^2(1)$
	N	**%**	**N**	**%**	
0	33	75	34	92	
1+	11	25	3	8	
Total	**44**	**100**	**37**	**100**	4.01*

*$p < .05$.

Note: N≠89 as some respondents did not provide data for these questions.

4.2.4.3.3 Conference Presentations and Use/Non-Use of ILL

In order to test whether there was a relationship between the number of presentations given at conferences during the past year and use/non-use of ILL, a *Chi Square* Test was performed on questions 49 and 53, whose results appear in Table 19 below.

Table 19 *Conference Presentations and Use/Non-Use of ILL Among Doctoral Students and Faculty*
(N=294)

Conference presentations	**Use of ILL**		**Non-use of ILL**		$\chi^2(2)$
	N	**%**	**N**	**%**	
0	30	24	55	32	
1-2	54	44	78	46	
3+	40	32	37	22	
Total	**154**	**100**	**170**	**100**	4.75

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 19, there was no statistically significant relationship between giving conference presentations and use and non-use of ILL. However, as the relationship was approaching significant (p= 0.09), and as 32% of users of ILL gave three or more conference presentations, compared to only 22% of non-users of ILL, the *Cochran-Armitage Trend Test* was performed to see if there was a significant trend. The results showed that there was a statistically significant trend and that among people who gave conference presentations, the overall percentage use of ILL was higher than people who didn't give conference presentations ($Z(N$=294) =-2.13, p< .03). When the *Chi Square* test was run separately on faculty the insignificant relationship between conference presentations and use/non-use of ILL remained - as shown in Table 20 below.

Table 20 *Conference Presentations and Use/Non-Use of ILL Among Faculty (N=87)*

Conference presentations	Use of ILL N	%	Non-use of ILL N	%	$\chi^2(2)$
0	3	6	6	15	
1-2	17	36	17	42.5	
3+	27	58	17	42.5	
Total	**47**	**100**	**40**	**100**	2.72

Note: N≠89 as some respondents did not provide data for these questions.

4.2.4.3.4 Peer-Review and Use/Non-Use of ILL

In order to test whether there was a relationship between the number of journal articles that the researcher was involved in peer-reviewing for other scholars and use/non-use of ILL, a *Chi Square* Test was performed on questions 50 and 53, whose results appear in Table 21 below.

Table 21 *Peer-Review and Use/Non-Use of ILL Among Doctoral Students and Faculty (N=287)*

Peer-Review	Use of ILL N	%	Non-use of ILL N	%	$\chi^2(2)$
0	66	55	97	58	
1-2	20	17	28	17	
3+	33	28	43	25	
Total	**119**	**100**	**168**	**100**	0.18

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 21, there was no statistically significant relationship between peer reviewing of articles and use/non-use of ILL. Both users and non-users of ILL peer-reviewed articles equally. When the statistical *Chi Square* test was run separately on faculty the insignificant relationship between pee-reviewing of articles and use/non-use of ILL remained - as shown in Table 22 below.

Table 22 *Peer-Review and Use/Non-Use of ILL Among Faculty (N=86)*

Peer-Review	**Use of ILL N**	**%**	**Non-use of ILL N**	**%**	$\chi^2(2)$
0	9	20	8	20	
1-2	12	27	10	24	
3+	24	53	23	56	
Total	**45**	**100**	**41**	**100**	0.07

Note: N≠89 as some respondents did not provide data for these questions.

4.2.4.4 Main Academic Discipline and Use/Non-Use of ILL

In order to test whether there was a relationship between main academic discipline and use/non-use of ILL, a *Chi Square* Test was performed on questions 69 and 53, whose results are displayed in Table 23 below.

Table 23 *Discipline and Use/Non-Use of ILL (N=287)*

Discipline	Use of ILL		Non-use of ILL		$\chi^2(3)$
	N	%	N	%	
Humanities	24	21	18	11	
Social Sciences & Law	25	22	42	24	
Medicine	13	11	11	6	
Science & Technology	53	46	101	59	
Total	**115**	**100**	**172**	**100**	9.34*

*$p < .05$.

Note: N≠313 as some respondents did not provide data for these questions.

As shown in Table 24, there was a statistically significant relationship between discipline and use/non-use of ILL. Forty-six percent of users of ILL were scientists, 22% were social scientists and 21% were humanists. However, among humanists and there were more users of ILL (*N*=24) than non-users (*N*=18), whereas among scientists there were more non-users of ILL (*N*=101) than users (*N*=53).

4.2.4.5 Summary of Findings on Academic Profile

The findings on *Academic Profile* showed that there were statistically significant relationships between seniority, rank, productivity level and academic discipline. Senior faculty members from the humanities who published articles and books frequently also used ILL more than other researchers.

4.3 Reasons for Non-Use of ILL

Nine questions asked non-users of ILL to indicate the main reasons for their non-use. Figure 8 below illustrates the distribution of these responses.

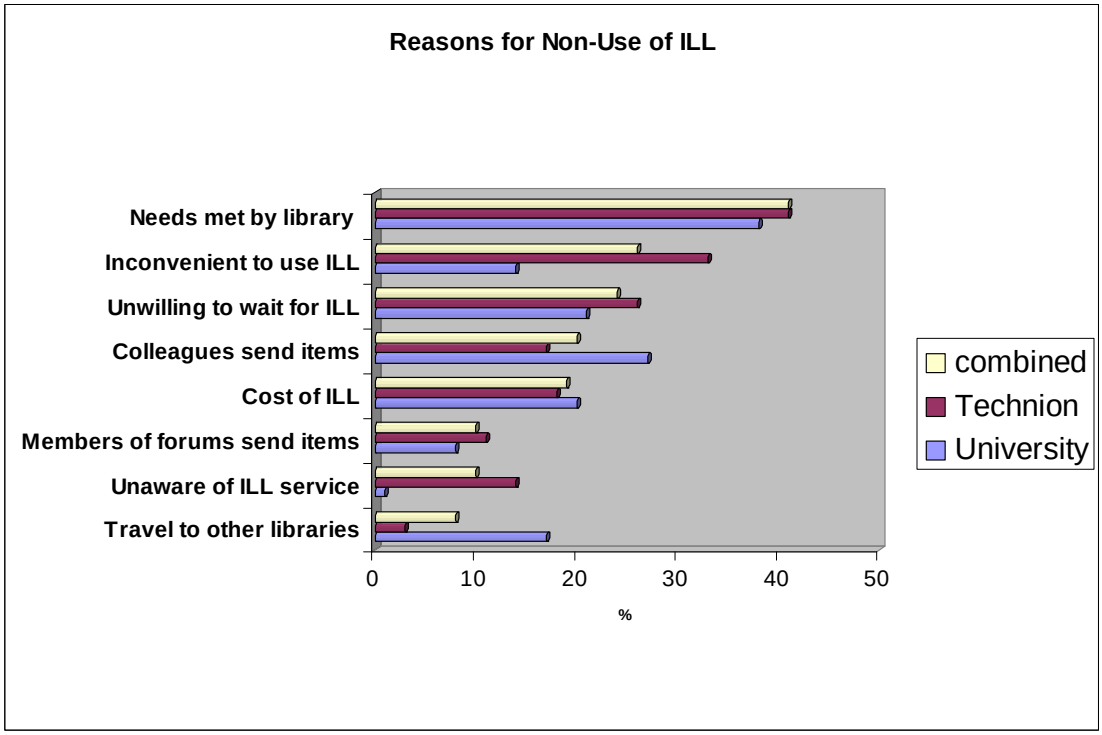


Figure 8. Reasons for non-use of ILL

As exhibited in Figure 8, the most common reason for non-use of ILL is that all information needs were met by the library, rendering ILL unnecessary. The next most common reason was the inconvenience of requesting ILL and waiting for delivery. Both these reasons were particularly pertinent at the Technion where the need for items is immediate. Cost of ILL was also a reason for non-use equally at both institutions. Lack of awareness of ILL services was not a reason for non-use at the University but it was at the Technion. Also, at the University, people were willing to travel to other libraries instead of ordering ILL, an option that was virtually non-existent among Technion faculty and doctoral students.

An interesting finding was that 35% of respondents claimed that they would use ILL if the service was free, although only 19% claimed that cost was a reason for non-use.

4.3.1 Comments on the Reasons for Non-Use of ILL

The most frequently-cited reasons for not using ILL in addition to the reasons that appear in Figure 8 were: (a) items were almost always available for free over the Internet eliminating the need for library subscriptions and ILL, (b) personal or departmental subscriptions to journals, (c) acquisitions of books, (d) ILL requests were made by supervisor/research assistant and not by end-user of information, (e) affiliation with other libraries enabled access to large number of electronic and print journals/books, and (f) library was not needed for research purposes, but for clinical practice. Although the current study did not specifically seek to ascertain the reasons for non-use of ILL, it is worth noting that the main reasons cited were discipline-related. All the people who cited the main reason for non-use of ILL was because the majority of items they needed were freely available on the Internet were from science, technology and medicine. Table 24 below illustrates the exact quotations received from non-users who claimed that the availability of information on the Internet was their main reason for non-use of ILL.

Table 24 *Availability of Information on the Internet as Reason for Non-Use of ILL*

Quotation
Nearly all the publications that I need are available to me in databases via the Technion. Even when I seek historical material I do not need other libraries because I find the material free on the Internet.
In my field, computer science, the absolute majority of publications are available on the internet, or in online databases that my faculty library subscribes to.
I do not use ILL because everything I need is available on the Internet (e.g. IEEE Xplore, Citseer).
I do not use ILL because most of the articles I seek are new and are available in electronic format on the Internet.
I use ILL as a last resort. Only if the item is very important to me and I can't get it from the Internet or via the University of Haifa library. Happily this happens infrequently, as I depend on new articles which can usually be found in electronic journals.
All the items I need I find online at home of in my office.
Taking into consideration the fact that most of the up-to-date articles are available on the internet, the time it takes to get an article via ILL and the cost, ILL is not a very attractive option.
Most publications are available on the Internet - on the authors' sites, in e-journals, etc…
Because it is possible to obtain nearly everything on the Internet, I only used ILL three times during the last eight years. Although the items helped me, they cost money.
I do not use ILL because I find most research on the Internet
Most of the articles on biology are on the Internet - some are free and some are available for a fee.
I don't use ILL services because I download from the Internet all the teaching materials I need. In my specialty, Medicine, all scientific knowledge is available on the Internet and because the Technion library subscribed to the relevant journals, they can be downloaded free.
Of the two databases I use one is completely free and for the other, I only partially need the library. Basically, in Astrophysics we don't need the library at all.

Table 25 below provides quotations from respondents showing additional reasons for non-use of ILL.

Table 25 *Main Reasons for Non-Use of ILL*

Main reasons for non-use of ILL	Quotation
Affiliation with other libraries	I have access to the libraries of a number of universities in Israel including the Open University, so ILL is less relevant to me.
Supervisor submits ILL requests on my behalf	My supervisor requests all the articles that I don't manage to download from the web or get from the library because of the charges.
Acquisition of books	I prefer to buy books on my research topic and not to borrow them, as in my opinion that is a more professional approach and allows you to return to them, to peruse, to develop and to be developed from the books that are your property. The question about borrowing shows the temporary nature of the material.
Personal/departmental subscriptions	As a member of an academic institution I have a subscription to a large number of periodicals.
Clinical practice	The items I need are not research articles [but used for clinical practice] so I manage with the resources available in the library and on the Internet.

The data in Table 25 suggests that having access to the electronic and print collections of other libraries, requesting ILL via an assistant or supervisor, buying books/subscribing to journals and not carrying out research are other reasons for non-use of ILL

4.4 Testing the Factors Related to Satisfaction with ILL Outcomes

The second research question asked whether there was a relationship between the perceived benefits of (a) consulting secondary information sources, (b) choosing indicative/informative titles, (c) receiving reference assistance, and (d) achieving a timely delivery and satisfaction with ILL outcomes. First users of ILL were isolated from non-users as this research question was concerned with the satisfaction of users

of ILL and not the satisfaction level of all respondents. Then the dependent variable *Satisfaction* was checked for reliability by checking the Alpha Cronbach on questions 43-46 and was found to have an Alpha of 0.81 indicating that this variable was a reliable measure of the satisfaction level of users of ILL. The variable *Satisfaction* was based on the following four statements:

- "I frequently cite items that I receive via ILL"
- "Most of the items I recently received via ILL were relevant and useful to my research"
- "I often find that the items I receive via ILL are more valuable to my research than I expected"
- "The quality of my research would suffer if I didn't receive items via ILL"

The mean response for satisfaction was 2.89 (i.e., "somewhat agree"), the standard deviation was 0.96 and the total number of users of ILL was 123.

4.4.1 Secondary Information Sources

The variable S*econdary Information Sources* was checked for reliability using questions 36-41 of the questionnaire and found to have an Alpha of 0.71 indicating that this variable was a reliable measure of ILL users' perceptions of the benefit of consulting secondary information sources prior to requesting ILL. The variable S*econdary Information Sources* was based on the following six statements:

- "In my opinion, reading an article's abstract before requesting ILL will improve satisfaction"
- "In my opinion, checking how many times an item has been cited before requesting ILL will improve satisfaction"
- "In my opinion, checking a journal's ranking before requesting ILL will improve satisfaction"
- "In my opinion, reading the table of contents of a book before requesting ILL will improve satisfaction"

- "In my opinion, reading a review of a book before requesting ILL will improve satisfaction"
- "In my opinion, verifying the institutional affiliation of an author before requesting ILL will improve satisfaction"

Figure 9 below shows the distribution of the responses to the questions on the benefits of secondary information sources.

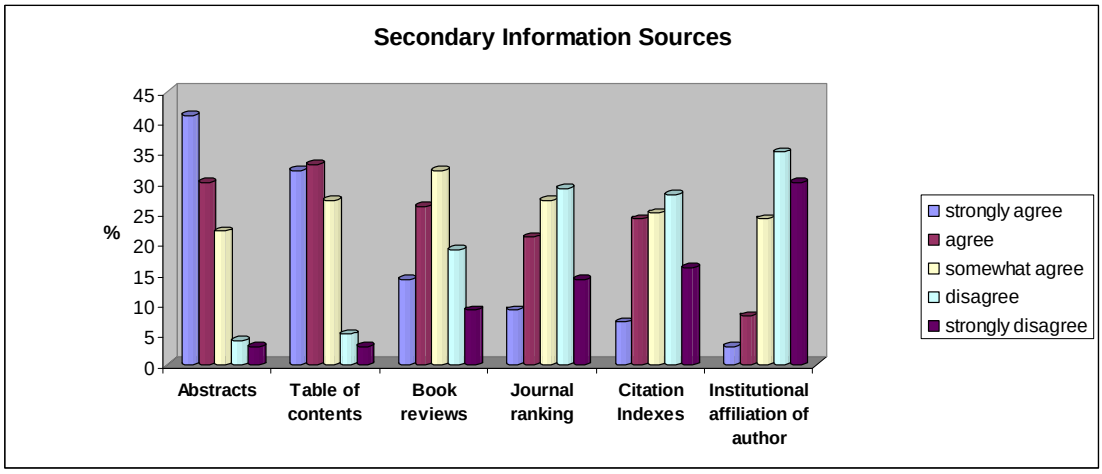


Figure 9. Secondary information sources

As shown in Figure 9 above, many of the respondents perceived abstracts, tables of contents and book reviews to be beneficial to ILL outcomes and that journal ranking, citation indexes, and institutional affiliation of the author were not considered to be beneficial to ILL outcomes.

In order to test the relationship between the perceived benefit of secondary information sources and satisfaction with ILL outcomes *Pearson Correlation Coefficient* was performed on questions 36-41 (secondary information sources), 43-46 (satisfaction). A weak positive correlation was identified (see Table 26 below), indicating that a positive perception of the benefits of consulting secondary information sources derives a higher level of satisfaction with ILL outcomes. Based on the frequencies

4.4.2 Indicative/Informative Titles

The variable *Indicative/Informative Titles* was checked for reliability using Alpha Cronbach on questions 32-34 and found to be 0.60 indicating that the variable was a reliable measure of ILL users' preferences concerning the titles of documents. The variable *Indicative/Informative Titles* was based on the following three statements:

- "In my opinion, a document's title should include the intention of the research"
- "In my opinion, a document's title should include the design of the research"
- "In my opinion, a document's title should include the main results of the research"

To test whether there was a relationship between the preference for *Indicative/Informative titles* and satisfaction with ILL outcomes *Pearson Correlation Coefficient* Test was performed which revealed that there was no significant correlation (see Table 26 below). Figure 10 below illustrates the distribution of the responses to the questions on informative/indicative titles.

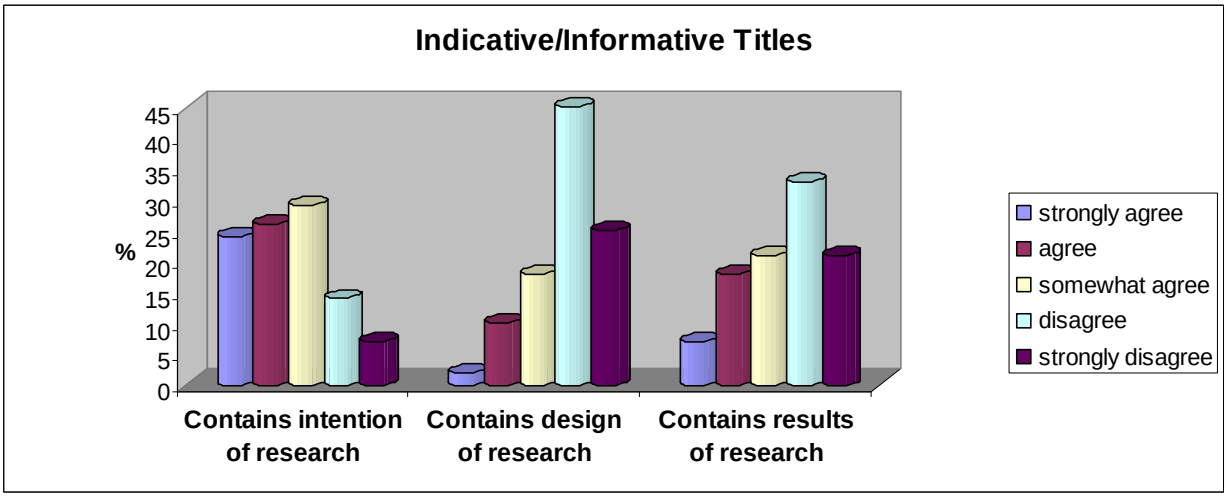


Figure 10. Indicative/informative titles

Although no significant relationship was found between titles and use and non-use of ILL, the distribution of responses in Figure 10 above clearly shows that respondents considered indicative titles, containing the intentions of a study, as more beneficial to ILL outcomes than informative titles, containing the design or results of a study.

4.4.3 Reference Assistance

The variable *Reference Assistance* was measured with the following statement:

- "In my opinion, receiving reference assistance prior to requesting ILL will improve the chances of receiving relevant and useful items"

To test whether there was a relationship between the perceived benefit of *Reference Assistance* and satisfaction with ILL outcomes *Spearman Correlation Coefficient* Test was performed on questions 42, 43-46. A medium to weak, positive correlation was identified (see Table 26 below), indicating that a positive perception of the benefits of reference assistance derives a higher level of satisfaction with ILL outcomes.

4.4.4 Timely Delivery

The variable *Timely Delivery* consisted of one statement:

- "I prefer to receive all the items I need for my research at the same time and not one after another"

To test whether there was a relationship between the preference for a *Timely Delivery* and satisfaction with ILL outcomes *Spearman Correlation Coefficient* was performed on questions 35, 43-46 and no significant correlation was found. The results of all four statistical tests appear in Table 26 below.

Table 26 *Factors Related to Satisfaction with ILL Outcomes (N=123)*

	Secondary Information Sources	Informative/ Indicative Titles	Reference Assistance	Timely Delivery
Satisfaction with ILL outcomes	0.19*	0.07	0.22*	-0.03

*$p < .05$.

Note: N≠313 as only responses of users of ILL were tabulated.

As shown in Table 26, there were positive correlations between the perceived benefits of consulting secondary information (r=.19, p=0.03) sources and receiving reference assistance (r_s=.22, p=0.01) and satisfaction with ILL outcomes. There were no significant correlations between preferring documents with indicative/informative titles or preferring a timely delivery and satisfaction with ILL outcomes.

4.4.5 Summary of Findings on the Factors Related to Satisfaction with ILL Outcomes

The findings on the factors related to satisfaction with ILL outcomes showed that there were statistically significant positive correlations between the perceived benefits of consulting secondary information sources and receiving reference assistance prior to requesting ILL and satisfaction with ILL outcomes. They also showed that there were no significant correlations between the perceived benefits of indicative/informative titles and timely delivery on satisfaction with ILL outcomes.

CHAPTER FIVE: DISCUSSION

The primary purpose of the current study was to determine if there were differences between users and non-users of ILL according to frequency of library use, style of information-seeking, demographics and academic profile. The secondary purpose was to determine whether the perceived benefits of consulting secondary information sources, choosing indicative/informative titles, receiving reference assistance and achieving a timely delivery were related to satisfaction with ILL outcomes. The two most significant findings were that: (a) the profile of an ILL user is someone who frequently uses the library's services and resources, has a deep style of information-seeking, and is an older, senior, productive, humanities, faculty member, and (b) ILL users who perceived consulting secondary information sources and reference assistance to be beneficial to ILL outcomes were likely to achieve satisfactory ILL outcomes.

5.1 Summary and Explanation of Findings

ILL tends to be used by researchers who are already familiar with, and frequently use, other library services and resources. In particular, users of ILL borrowed books and utilized the library databases more than non-uses of ILL.

However, one aspect of library use did not yield significant differences between users and non-users of ILL; both groups photocopied and downloaded articles from the Internet equally. A possible explanation for this is the widespread availability of journals in electronic formats which has permeated the whole academic community and is an academic necessity.

Another anticipated finding was that users of ILL tended to have a deep style of information-seeking (*Deep Diving*) which involves making "much effort to find

information and for them only the highest quality is acceptable. Information seeking is thus deep both in the sense of search strategy and information content" (Heinstrom, 2002, p. 174). This finding was expected since ILL requesting demands a substantial amount of time and effort on the part of the user; deciding whether a particular citation is relevant and worth requesting via ILL, completing an ILL request form, waiting, paying, and collecting an item - a process which takes at least twice the time, effort and cost of downloading an item from a library database or the Internet.

In light of the above findings, it was not surprising therefore, that non-users of ILL tended to have a superficial style of information-seeking and did not spend much time or effort seeking further information. According to Heinstrom, superficial information-seekers (*Fast Surfers*) tend to "experience problems of relevance judgement and feel that lack of time prevents them from seeking information. They neither search for information very thoroughly nor invested much effort into their information seeking" (p. 142). In addition, they "find the appearance of the document important, prefer certain types of documents [such as overviews and clearly written material] and want to find confirmation of old knowledge" (p. 147).

Neither users nor non-users of ILL were found to have a broad style of information-seeking, possibly as this type of information-seeking is characterized principally by the serendipitous encountering of information, and not avoidance of information-seeking, that is typical of *Fast Surfers*, or systematic information-seeking, that is typical of *Deep Divers*. According to Heinstrom, *Broad Scanners* are "characterized by wide and thorough information-seeking. They seek information from many different sources, retrieve information by chance [and not by planned database searching] and find it easy to judge information critically" (p. 158). A possible explanation for this finding is the complexity of the ILL process which

involves a series of steps which would seem to deter both the *Broad Scanner* and the *Fast Surfer*.

Of the three demographic variables studied, only age was related to use of ILL. This finding had been anticipated since research shows that young people use the Internet and electronic journals more than older academics and they prefer to receive information quickly (Agosto, 2002; Shackel, 1991). Other factors that may also explain why older academics used ILL more than younger academics is that they may be more senior and have a higher rank at their institution of employment than doctoral students, and thus more funding available for ILL (Kinnucan, 1993). The current study indeed corroborated that faculty were more willing to pay for ILL than doctoral students.

A somewhat surprising finding was that neither gender nor mother-tongue was related to use and non-use of ILL. Since studies have shown that males use libraries more than females (Adomi & Ogbomo, 2003; Jiao & Onwuegbuzie, 1997) and that they are more productive than females (Barjak, 2006; Prpic, 2002), it was anticipated that they would also use ILL more than females. Similarly, data from the ILL Department at the University of Haifa has indicated that non-native Hebrew speakers, especially those whose first language is English, Spanish, Russian or Arabic, conduct their research primarily in their mother-tongue, and frequently request publications via ILL in these languages. A possible explanation for the non-significant relationship between mother-tongue and use and non-use of ILL is the small number of non-native Hebrew speakers (English (*N*=6%) Russian (*N*=9%) and Arabic (*N*=6%)) who responded to the current study.

Seniority was related to use and non-use of ILL in that senior researchers used ILL more than junior researchers. This may be partly due to young people's partiality

for using the Internet, e-journals and *satisficing*, but it also may be because senior researchers tend to have institutional funding available for ILL, which may encourage them to use ILL more. Among non-users of ILL in the current study, 36% of doctoral students claimed that one of the reasons for non-use of ILL was that it was too expensive, compared to 27% of faculty, and 55% of doctoral students said they would use ILL if it were free, compared to 42% of faculty. In addition, there were significant differences between the responses of researchers from the two institutions concerning their willingness to pay for ILL. At the Technion, only 32% of respondents agreed that they were nearly always willing to pay for ILL, compared to 48% at the University. This may be due to the fact that the Technion charges 30% more than the University of Haifa for each ILL request. Moreover, at the Technion, only 29% of doctoral students and 45% of faculty were willing to pay for ILL, compared to 42% of doctoral students and 54% of faculty at the University of Haifa. It would seem therefore, that cost and the availability of funding are two major factors affecting use and non-use of ILL, especially among doctoral students.

The two main aspects of productivity, i.e., the publication of articles in scholarly journals and the publication of books, were related to use of ILL. More prolific researchers also used ILL more than non-prolific researchers, a finding which is consistent with previous research (Sridhar, 1994; Zainab, 2001). Another aspect of productivity, frequent delivering presentations at conferences, was also related to use of ILL, yet frequent peer-reviewing of articles in scholarly journals was not. Overall, scientific productivity was very strongly-related to use of ILL, indicating that very productive researchers need and use ILL and appreciate its value in the research process and that they were more willing to make the effort to request ILL than non-productive researchers.

Neither tenure status nor promotion status was related to use and non-use of ILL. However, among tenured and non-tenured faculty there were more users of ILL than non-users and non-tenured faculty used ILL slightly more than tenured faculty. A possible reason that promotion status was unrelated to use/non-use of ILL was the small number of tenured faculty (*N*=38) who responded to the questionnaire. Another finding worthy of note was that high academic rank was related to use of ILL and that faculty used ILL much more than doctoral students.

Another major difference between users/non-users of ILL was connected to the discipline of their research, a finding which is supported in the literature (Wiley & Chrzastowski, 2005). Humanities' scholars used ILL more than researchers from other disciplines, and scientists used it the least. Possible reasons for this discrepancy are associated with differences in the nature of the research that is carried out, the predominant information-seeking practices and the format of materials needed and available on the Internet. Humanists often need primary sources, seek information in library databases and need items that are not born digital, making ILL an essential component of their research process.

The findings of the current study therefore provide a profile of an ILL user as a person who frequently uses the library's services and resources, has a deep style of information-seeking, and is an older, senior, productive, faculty member from the humanities. In contrast, the profile of a non-user of ILL is a person who does not frequently use the library's services, has a surface style of information-seeking, and who is a younger, junior, less productive, doctoral student from the sciences.

In addition to studying the differences between users and non-users of ILL, the current study examined the perceived benefits of certain factors on satisfaction with ILL outcomes. It did not examine the degree of satisfaction with ILL services, such as

speed of supply, fill rate, quality of articles, or politeness and professional knowledge of the staff, which have already been shown to be very high (Perrault & Arseneau, 1995; Ruthven & Magnay, 2001), rather the extent to which the outcome of an ILL request was considered satisfactory based on whether it was more valuable, relevant and useful than expected, whether it would be cited by the user and whether the quality of the user's research would suffer without it.

Another important finding of the current study was that the perceived benefit of consulting secondary information sources was related to satisfaction with ILL outcomes. More specifically, respondents perceived abstracts and table of contents to be more beneficial to ILL outcomes than book reviews, citation indexes, journal ranking indexes and institutional affiliation checks. This finding confirms the research of Stone (1983) and Exon (1993) that showed that abstracts contributed to the success of ILL outcomes.

Another key finding with implications for library practice was that the perceived benefit of reference assistance was related to satisfaction with ILL outcomes, with 63% of respondents agreeing with the statement "receiving reference assistance prior to requesting ILL will improve the chances of receiving relevant and useful items". These finding confirm the role of reference assistance in the information-seeking and ILL processes and that by "…assisting users in finding and evaluating information, providing instruction in using resources, and selecting materials" (Crowe, 2003, p. 60), reference librarians also help users of ILL to achieve satisfactory ILL outcomes.

Based on statistics on reference use at the University of Haifa library, which showed that faculty rarely sought reference assistance in person, one of the assumptions of the current study was that the amount of use and satisfaction with

reference assistance would differ among faculty and doctoral students. The findings did indeed confirm that there was an approaching significant (p=0.05) relationship between rank and the perceived benefit of reference assistance on ILL outcomes. In other words, doctoral students tended to agree more than faculty with the statement "In my opinion, receiving reference assistance prior to requesting ILL will improve the chances of receiving relevant and useful items". This finding is consistent with recent research on the use of reference services by faculty and doctoral students. Harless & Allen (1999) which has shown that faculty at the Virginia Commonwealth University, requested reference assistance 2-5 times a year, compared to doctoral students who requested reference assistance 2-5 times a semester. And in a study by De Groote, Hitchcock & McGowan (2007) at the University of Illinois at Chicago health sciences library, it was found that over two one-month periods only 22% of faculty requested reference assistance compared to 28% of doctoral students.

An unanticipated finding of the current study was that the perceived benefit of choosing indicative or informative titles was not related to satisfaction with ILL outcomes. Although most people preferred informative to indicative titles, no connection was found between a preference for a certain type of title and satisfaction with ILL outcomes. Titles were expected to be related to satisfaction with ILL outcomes as they succinctly describe the main idea of a publication and provide the first piece of information with which a user can make a decision about the relevance of a document. A possible reason for this result was that the questionnaire was misleading and that the statements concerning titles of documents were not worded clearly enough to indicate the connection to ILL. For example, question 32 stated "In my opinion, a document's title should include the intention of the research", which could have been worded "In my opinion, choosing a document whose title includes

the intention of the study will improve satisfaction with ILL" to cause less confusion. Likewise, question 33 stated "In my opinion, a document's title should include the design of the research" instead of "In my opinion, choosing a document whose title includes the design of the study will improve satisfaction with ILL", and question 34 stated "In my opinion, a document's title should include the main results of the research", instead of "In my opinion, choosing a document whose title includes the results of the study will improve satisfaction with ILL".

Another unanticipated finding was that the perceived benefit of achieving a timely delivery was not related to satisfaction with ILL outcomes. This indicates that ILL users were equally satisfied and dissatisfied with the outcomes of their ILL requests both with timely and untimely deliveries. This finding contradicts the results of earlier research that showed that timely delivery is one of the most important factors affecting satisfaction with ILL services (Murphy & Lin, 1996; Stein, 1999; Weaver-Meyers & Stolt, 1996).

A possible explanation for the above findings - that ILL users perceived secondary information sources and reference assistance to be beneficial to ILL outcomes, but they did not perceive indicative/informative titles and timely deliveries to be beneficial to ILL outcomes - is connected to the extent of responsibility and control of the ILL user in the process and his/her interaction with the library system and staff. Consulting secondary information sources and seeking reference assistance require actions and decision-making by the user, whereas choosing indicative/informative titles only requires decision-making. Likewise, timely deliveries require the user to initiate the request, but are dependent primarily on the level of service the ILL librarians at the requesting and supplying libraries are able to provide.

Another interesting finding was that one of the main reasons for non-use of ILL, in addition to lack of awareness of ILL and cost, was that the vast majority of desired information in the sciences and technology was freely available on the Internet, rendering ILL and libraries redundant for many researchers. An additional reason for non-use of ILL by humanities scholars' was their preference for purchasing personal copies of books, which unlike ILL, remained in their possession after use. A possible reason for this is the increasing ease and attractive prices of books that can be purchased from online bookstores.

5.2 Implications of the Findings

Although recent studies have shown that the prevalence of electronic journal usage in academic libraries has caused a decline in ILL use (Loy, 2007; Wiley & Chrzastowski, 2005), especially since new electronic initiatives have begun providing electronic access to retrospective journal articles and not just recent ones, the current study indicates that the reverse may be true. In the humanities, serious researchers continue to request ILL for books which are not held by their libraries and/or are not accessible via the Internet due to their predominant need for old, non-English language, esoteric, primary sources.

In addition, the following phenomena may have contributed to the continuing demand for ILL: (a) widespread access to scholarly publications of all disciplines via the Internet which has increased awareness of potential information sources, (b) the exponential increase in the overall number of articles and books being published which has increased the number of potential information sources but not necessarily their availability, (c) dwindling library budgets across the globe and huge price rises by publishers which has made acquisitions of electronic and print books and subscriptions to electronic and print journals harder and resource-sharing and ILL a

necessity for most academic libraries, and (d) technological innovations which have made obtaining books and articles from around the globe via ILL a quick and simple process.

5.2.1 Applied Implications

The findings of the current study are applicable to current library and information science practice in that an awareness of the profile of users and non-users of ILL may enable librarians to identify potential users of ILL and to encourage them to avail themselves of the service. In particular, librarians can offer ILL during reference interviews and can assist patrons in consulting secondary information sources prior to requesting ILL. In addition, by embarking on active marketing of ILL services, librarians could target non-users of ILL so that they become users. Librarians could also provide advanced database instruction programs for novice and experienced researchers which emphasize the added value that ILL can bring to their work and which highlight the role of databases for pre-ILL evaluation purposes and not just as a tool for seeking information on a particular subject. Moreover, training in database usage should help alleviate the problem of the complexity and disparity of databases which may be deterring their use and encouraging users to turn to Google.

In addition, librarians could simplify library web-sites so that databases are easily accessible and searchable and facilitate a seamless ILL process from the initial identification of a relevant publication to its ultimate receipt on a researcher's desktop.

5.3 Directions for Future Research

5.3.1 Theoretical Directions

One of the main findings of the current study was that ILL requesting is associated with a deep style of information-seeking. A possible direction for future research is to examine whether a person's style of information-seeking remains constant during a research project or whether it changes as he/she gains perspective on a subject. Research is also needed to investigate whether style of information-seeking and the amount of ILL requesting are affected by stage in the research process.

The current study found that humanities' scholars tended to use ILL more than researchers from other disciplines. Future research could address not only the predominant disciplines of ILL requests, but also the nature of the items requested, such as literature reviews, historical research, and experimental research in order to understand the decision-making process of researchers who are willing to wait for such items to arrive via ILL. In addition, further research could investigate whether scholars tend to request via ILL items that confirm their own hypotheses or whether they select items that contradict or expand on them. An investigation of the above issues would undoubtedly provide a fuller understanding of users and non-users of ILL and the future of ILL in academia.

5.3.2 Applied Directions

Based on the findings of the current study, there are several possible applied directions for future research: (a) an investigation into whether researchers want the library to perform non-traditional forms of ILL on their behalf, such as acquiring personal copies of books for them or scanning old, non-copyrighted books on-demand which are then added to the collection, (b) an examination of the current book-purchasing and personal journal-subscription practices of faculty in order to reveal under what circumstances they require ownership of books and journals and when

access is sufficient, and to investigate whether such a trend poses a threat to the long-term existence of ILL departments in academic libraries in predominantly humanities institutions, (c) an investigation into whether there is a demand for supplying articles that are already available in print and/or electronic formats in the local library collection, (e) an investigation into whether the decrease in ILL article requesting is continuing in all academic disciplines, or whether there is actually an increase in the humanities where there are fewer e-journals, (f) an exploration of the extent to which authors of prize-winning doctoral research, books, and articles that were published in highly-ranked journals, used and cited items that were obtained via ILL, (g) an assessment of additional ways of improving satisfaction with ILL outcomes, such as by encouraging users to access databases and search engines that provide chapters of books and parts of articles, prior to requesting ILL, and (h) an attempt to find ways of attracting fast surfers and non-users of ILL to become users of ILL.

5.4 Conclusion

The current study shows that ILL is still in high demand in academia and is not likely to be eliminated from library use in the near future. Although some studies have shown that there has been a decline in the document delivery aspect of ILL due to the widespread availability and use of electronic journals (Wiley & Chrzastowski, 2005), the current study shows that book borrowing is still in high demand, particularly by older, senior, productive, humanities researchers, who are willing to invest effort in evaluating items prior to requesting ILL and who appreciate the professional knowledge and experience of librarians in locating them. The main contribution of the current study to the field of library and information science is its corroboration of ILL as an essential library service for serious researchers.

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APPENDIXES

Appendix A: Information-Seeking Styles and Interlibrary Loan Use Questionnaire (English Translation)

The following questionnaire checks your style of information-seeking and your interlibrary use habits.
The research is being carried out as part of my doctoral dissertation in the Department of Information Science at Bar-Ilan University.
I should be most grateful if you could take about seven minutes of your time to fill in the questionnaire.
All details you provide will be used for statistical analyses and will be kept confidential.
If you are interested in receiving a copy of the results please send an e-mail to porat@univ.haifa.ac.il.

Please choose the best option for each sentence. If none of the statements are relevant to you, please move on to the next one.

A. Please indicate the extent of your agreement with the following statements:	**strongly disagree**		**somewhat agree**		**strongly agree**
1. I often use Google and other free Internet sources for academic purposes	1	2	3	4	5
2. I sometimes choose a book or article based on its appearance	1	2	3	4	5
3. I frequently use library databases within the library premises	1	2	3	4	5
4. It is important to me to find documents that were researched thoroughly	1	2	3	4	5
5. I prefer articles that give an overview of my research topic	1	2	3	4	5
6. I frequently use library databases from my home or office	1	2	3	4	5
7. I choose documents that are written in a clear and plain manner	1	2	3	4	5
8. I frequently choose documents from well-established and well-known journals	1	2	3	4	5
9. I try to find documents written by authors who are respected in their fields	1	2	3	4	5
10. I seek documents based on their apparent scientific level	1	2	3	4	5
11. I prefer documents that were written in my mother-tongue	1	2	3	4	5
12. I find it easy to see how others could improve their research	1	2	3	4	5
13. Sometimes I simply do not have time to seek information	1	2	3	4	5
14. I often find it hard to differentiate between the most important issues raised in an article	1	2	3	4	5
15. Most of what I have read for my current	1	2	3	4	5

	research corresponds with my own opinions					
16.	I prefer to find only a few documents which exactly match the subject of my research	1	2	3	4	5
17.	I prefer to find documents that bring new perspectives on my research topic	1	2	3	4	5
18.	I am nearly always willing to wait for an item to arrive via interlibrary loans	1	2	3	4	5
19.	I am nearly always willing to pay for an item to arrive via interlibrary loans	1	2	3	4	5
20.	Sometimes I choose to manage without documents rather than spending a long time searching for them	1	2	3	4	5
21.	I buy books for my research	1	2	3	4	5
22.	I am happy to spend time on information-seeking for my research	1	2	3	4	5
23.	I am willing to pay for information on the Internet	1	2	3	4	5
24.	I only use material that is available immediately	1	2	3	4	5
25.	In my opinion, a small number of well-chosen documents is enough for most research projects	1	2	3	4	5
26.	I regularly search for information related to my research	1	2	3	4	5
27.	In my opinion, it is worth concentrating on the first few relevant pieces of information one finds in order to save time	1	2	3	4	5
28.	In my opinion, it is essential to carry out a thorough literature review before starting a research project in a new field	1	2	3	4	5
29.	Sometimes I come across information even though I am not consciously looking for it	1	2	3	4	5
30.	I want to find information about all aspects of my research	1	2	3	4	5
31.	If I do not get the desired results when searching in a database, I assume that nothing was written on my topic and stop searching	1	2	3	4	5
32.	In my opinion, a document's title should include the intention of the research	1	2	3	4	5
33.	In my opinion, a document's title should include the design of the research	1	2	3	4	5
34.	In my opinion, a document's title should include the main results of the research	1	2	3	4	5
35.	I prefer to receive all the items I need for my research at the same time and not one after another	1	2	3	4	5
36.	In my opinion, reading an article's abstract before requesting ILL will improve satisfaction	1	2	3	4	5
37.	In my opinion, checking how many times an item has been cited before requesting ILL will improve satisfaction	1	2	3	4	5
38.	In my opinion, checking a journal's ranking before requesting ILL will improve	1	2	3	4	5

	satisfaction					
39.	In my opinion, reading the table of contents of a book before requesting ILL will improve satisfaction	1	2	3	4	5
40.	In my opinion, reading a review of a book before requesting ILL will improve satisfaction	1	2	3	4	5
41.	In my opinion, verifying the institutional affiliation of an author before requesting ILL will improve satisfaction	1	2	3	4	5
42.	In my opinion, receiving reference assistance prior to requesting ILL will improve the chances of receiving relevant and useful items	1	2	3	4	5
43.	I frequently cite items that I receive via ILL	1	2	3	4	5
44.	Most of the items I recently received via ILL were relevant and useful to my research	1	2	3	4	5
45.	I often find that the items I receive via ILL are more valuable to my research than I expected	1	2	3	4	5
46.	The quality of my research would suffer if I didn't receive items via ILL	1	2	3	4	5
		strongly disagree		***neutral***		***strongly agree***

B. During the past year how many?	**none**	**1-2**	**3-4**	**5-10**	**10+**
47. articles did you publish	1	2	3	4	5
48. books did you publish	1	2	3	4	5
49. conference presentations did you give	1	2	3	4	5
50. articles did you peer-review	1	2	3	4	5

C. During the past year how many?	**none**	**1-10**	**11-50**	**51-100**	**100+**
51. articles did you download or photocopy	1	2	3	4	5
52. books did you borrow from the library	1	2	3	4	5
53. ILL requests did you make	1	2	3	4	5

D. If you haven't used ILL at all in the past year please indicate the extent of your agreement with the following statements	**strongly disagree**		**somewhat agree**		**strongly agree**
54. I do not use ILL because all my research needs are met by my institution's library	1	2	3	4	5
55. I do not use ILL because I frequently travel to other libraries to get the publications I need	1	2	3	4	5
56. I do not use ILL because my colleagues send me all the items I cannot obtain on my own	1	2	3	4	5
57. I do not use ILL because members of the professional forums and discussion groups I belong to send me the items I cannot obtain on my own	1	2	3	4	5
58. I do not use ILL because it is too expensive	1	2	3	4	5
59. If ILL was free I would probably use the service	1	2	3	4	5
60. I am not willing to wait for an item to arrive via ILL if it is not available immediately	1	2	3	4	5
61. I do not use ILL because it is not convenient to order via ILL	1	2	3	4	5
62. I do not use ILL because I was not aware that there was an ILL service in our library	1	2	3	4	5

63. Comments_____

E. What is your?							
64. Year of birth	_____						
65. Gender	1. male	2. female					
66. Mother-tongue	1. Hebrew	2. Arabic	3. English	4. Russian	5. other _____		
67. Year of first academic appointment	_____						
68. Academic rank	1. PhD. student	2. non-tenured faculty	3. tenured faculty seeking promotion	4. tenured faculty not seeking promotion			
69. Main academic discipline	1. humanities	2. social sciences	3. law	4. medicine	5. sciences	6. technology	7. other _____

Thank you for your cooperation.

Appendix B: Information-Seeking Styles and Interlibrary Loan Use

Questionnaire (in Hebrew)

שאלון סגנונות חיפוש מידע ושימוש בהשאלה בין-ספרייתית

שאלון זה בודק את סגנון חיפוש המידע שלך, ואת הרגליך בשימוש בהשאלה בין-ספרייתית.
המחקר נערך במסגרת לימודי הדוקטורט שלי במחלקה ללימודי מידע באוניברסיטת בר-אילן.
אודה מאוד אם תקדיש כשבע דקות מזמנך למילוי השאלון.
השאלון כתוב בלשון זכר, מטעמי נוחות בלבד.
כל הפרטים יועברו לידי לצורך עיבוד סטטיסטי, ויהיו חסויים.
אם אתה מעוניין לקבל את תוצאות המחקר, אנא צור קשר בדוא"ל porat@univ.haifa.ac.il

אנא בחר את האופציה המתאימה בכל משפט, אם היגד כלשהו אינו רלוונטי לגביך - אנא השאר אותו ריק

A. אנא ציין עד כמה אתה מסכים עם ההיגדים הבאים	מסכים מאוד				לא מסכים בכלל
1. אני מרבה להשתמש לצרכים אקדמיים בגוגל ובמקורות נוספים בחינם באינטרנט	5	4	3	2	1
2. לפעמים אני בוחר פרסומים על סמך המראה החיצוני שלהם	5	4	3	2	1
3. אני מרבה להשתמש במאגרי מידע של הספריה בתוך הספריה	5	4	3	2	1
4. חשוב לי למצוא פרסומים ששיטות מחקרם יסודיות מאוד	5	4	3	2	1
5. אני מעדיף פרסומים שנותנים סקירה של הנושא	5	4	3	2	1
6. אני מרבה להשתמש במאגרי מידע של הספריה ממשרדי או מביתי	5	4	3	2	1
7. אני נוטה לבחור בפרסומים הכתובים בשפה פשוטה וברורה	5	4	3	2	1
8. אני מרבה לבחור בפרסומים מכתבי עת מבוססים וידועים	5	4	3	2	1
9. אני מנסה למצוא פרסומים שנכתבו על ידי חוקרים ידועים ומכובדים בתחומם	5	4	3	2	1
10. אני בוחר בפרסומים על סמך רמתם המדעית - ככל שניתן	5	4	3	2	1
11. אני מעדיף פרסומים שכתובים בשפת אמי	5	4	3	2	1
12. קל לי לראות איך אחרים יכולים לשפר את מחקריהם	5	4	3	2	1
13. לפעמים אין לי זמן לחפש מידע	5	4	3	2	1
14. במחקרים רבים שאני קורא קשה לי למצוא את העיקר	5	4	3	2	1
15. מחקרים רבים שאני קורא מאשרים את עמדותיי	5	4	3	2	1
16. אני מעדיף למצוא רק מעט פרסומים שמתאימים בדיוק לנושא המחקר שלי, ולא פרסומים רבים הקשורים אליו רק במעט	5	4	3	2	1
17. אני מעדיף למצוא פרסומים שמביאים פרספקטיבות חדשות לנושא המחקר שלי	5	4	3	2	1
18. אני כמעט תמיד מוכן לחכות לקבלת פרסומים באמצעות שירותי השאלה בין-ספרייתית	5	4	3	2	1
19. אני כמעט תמיד מוכן לשלם עבור קבלת פרסום באמצעות שירותי השאלה בין-ספרייתית	5	4	3	2	1
20. לפעמים אני בוחר לוותר על פרסום במקום לחפש אותו זמן רב	5	4	3	2	1
21. אני קונה מכספי ספרים למחקרי	5	4	3	2	1
22. אני שמח להשקיע זמן בחיפוש מידע למחקרי	5	4	3	2	1
23. אני מוכן לשלם עבור פרסומים שאני מוצא באינטרנט	5	4	3	2	1
24. אני משתמש רק בפרסומים הנגישים באופן מיידי	5	4	3	2	1
25. לדעתי, מספר קטן של פרסומים שנבחרו בקפדנות מספיק לפרויקט מחקרי	5	4	3	2	1
26. אני מחפש מידע למחקרי לעיתים קרובות	5	4	3	2	1
27. לדעתי, כדאי להתרכז בפרסומים הרלוונטיים הראשונים שנמצאים - כדי	5	4	3	2	1

לחסוך זמן					
28. לדעתי, לפני שמתחילים במחקר חדש בתחום חדש, חשוב לערוך סקר ספרות יסודי	5	4	3	2	1
29. לפעמים אני נתקל במידע, גם אם לא חיפשתי אותו	5	4	3	2	1
30. אני מעוניין למצוא מידע על כל האספקטים של המחקר שלי	5	4	3	2	1
31. אם אינני מקבל את התוצאות הדרושות במאגר מידע כלשהו - אני מניח שלא נכתב דבר על הנושא, ומפסיק לחפש	5	4	3	2	1
32. לדעתי, כוונת המחקר צריכה להיכלל בכותרת הפרסום	5	4	3	2	1
33. לדעתי, שיטות המחקר צריכות להיכלל בכותרת הפרסום	5	4	3	2	1
34. לדעתי, תוצאות המחקר העיקריות צריכות להיכלל בכותרת הפרסום	5	4	3	2	1
35. חשוב לי שכל הפרסומים שאני צריך למחקרי יהיו בידי בו-זמנית, ולא יגיעו בפרקי זמן גדולים בין פרסום לפרסום	5	4	3	2	1
36. לדעתי, קריאת תקציר לפני ביצוע הזמנת השאלה בין-ספרייתית, תשפר את שביעות הרצון מהפרסום	5	4	3	2	1
37. לדעתי, בדיקת מספר הפעמים שציטטו פרסום מסוים לפני ביצוע הזמנת השאלה בין-ספרייתית, תשפר את שביעות הרצון מהפרסום	5	4	3	2	1
38. לדעתי, בדיקת דירוג כתב העת לפני ביצוע הזמנת השאלה בין-ספרייתית, תשפר את שביעות הרצון מהפרסום	5	4	3	2	1
39. לדעתי, קריאת תוכן העניינים של ספר לפני ביצוע הזמנת השאלה בין-ספרייתית, תשפר את שביעות הרצון מהפרסום	5	4	3	2	1
40. לדעתי, קריאת ביקורת על ספר לפני ביצוע הזמנת השאלה בין-ספרייתית, תשפר את שביעות הרצון מהפרסום	5	4	3	2	1
41. לדעתי, בדיקת ההשתייכות המוסדית של המחבר לפני ביצוע הזמנת השאלה בין-ספרייתית, תשפר את שביעות הרצון מהפרסום שהוזמן	5	4	3	2	1
42. לדעתי, קבלת עזרה מספרן יעץ לפני ביצוע הזמנת השאלה בין-ספרייתית, תעלה את הסיכוי לקבל פרסום רלוונטי ושימושי	5	4	3	2	1
43. אני מרבה לצטט פרסומים שקיבלתי באמצעות שירותי השאלה בין-ספרייתית	5	4	3	2	1
44. רוב הפרסומים שקיבלתי לאחרונה באמצעות שירותי השאלה בין-ספרייתית היו רלוונטיים ושימושיים למחקרי	5	4	3	2	1
45. לעיתים קרובות אני מוצא כי פרסומים שאני מקבל באמצעות שירותי השאלה בין-ספרייתית תרמו למחקרי יותר ממה שציפיתי	5	4	3	2	1
46. איכות המחקר שלי הייתה נפגעת בהיעדר שימוש בשירותי השאלה בין-ספרייתית	5	4	3	2	1
	מסכים מאוד		***מסכים***		***לא מסכים בכלל***

B. בשנה האחרונה כמה...	**10+**	**5-10**	**3-4**	**1-2**	**כלל לא**
47. מאמרים פרסמת	5	4	3	2	1
48. ספרים פרסמת	5	4	3	2	1
49. מחקרים הצגת בכנסים	5	4	3	2	1
50. מאמרים של עמיתים ביקרת	5	4	3	2	1

C. בשנה האחרונה כמה...	**10+**	**51-100**	**11-50**	**1-10**	**כלל לא**
51. מאמרים הורדת או צילמת	5	4	3	2	1
52. ספרים שאלת	5	4	3	2	1
53. פרסומים הזמנת באמצעות שירותי השאלה בין-ספרייתית	5	4	3	2	1

D. אם לא השתמשת בשירותי השאלה בין-ספרייתית בשנה האחרונה, אנא ציין עד כמה אתה מסכים עם ההיגדים הבאים	מסכים מאוד		מסכים		לא מסכים בכלל
54. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שכל צורכי המחקר שלי נענים על ידי הספריה	5	4	3	2	1
55. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שאני נוסע לספריות אחרות בארץ או בחו"ל לעתים קרובות	5	4	3	2	1
56. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שעמיתיי שולחים לי את הפרסומים שאינני מצליח להשיג בעצמי	5	4	3	2	1
57. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שאנשים בפורומים/קבוצות דיון שולחים לי את כל מה שאני לא מצליח להשיג בעצמי	5	4	3	2	1
58. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שעלותם גבוהה עבורי	5	4	3	2	1
59. אני מניח שאילו שירותי השאלה בין-ספרייתית היו בחינם - הייתי משתמש בהם	5	4	3	2	1
60. באופן כללי, אינני מוכן לחכות לפרסום שיגיע באמצעות שירותי השאלה בין-ספרייתית, אם אין אפשרות לקבל אותו מיידית	5	4	3	2	1
61. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שלא נוח לבצע הזמנה	5	4	3	2	1
62. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שאינני מודע לקיום שירות זה	5	4	3	2	1

63. הערות: _____

E. אנא ציין							
64. שנת לידה	_____						
65. מין	1 זכר	2 נקבה					
66. שפת-אם	.1 עברית	.2 ערבית	.3 אנגלית	.4 רוסית	.5 אחרת _____		
67. השנה בה מונית לתפקידך האקדמי הראשון	_____						
68. דרגתך האקדמית	.1 סטודנט לתואר שלישי	.2 סגל ללא קביעות	.3 סגל עם קביעות השואף לקידום	.4 סגל עם קביעות שאינו שואף לקידום			
69. מהו התחום האקדמי העיקרי שלך	.1 מדעי הרוח	.2 מדעי החברה	.3 משפטים	.4 רפואה	.5 מדעים	6 טכנולוגיה	.7 אחר _____

תודה רבה על שיתוף הפעולה!

Appendix C: Pilot Questionnaire (English Translation)

Information-Seeking Styles and Interlibrary Loan Use Questionnaire

The following questionnaire checks your style of information-seeking and your interlibrary use habits.
The research is being carried out as part of my doctoral dissertation in the Department of Information Science at Bar-Ilan University.
I should be most grateful if you could take about seven minutes of your time to fill in the questionnaire.
All details you provide will be used for statistical analyses and will be kept confidential.
If you are interested in receiving a copy of the results please send an e-mail to porat@univ.haifa.ac.il.

Please choose the best option for each sentence. If none of the statements are relevant to you, please leave the question empty.

A. During the last year how many?	**none**	**1-2**	**3-4**	**5-10**	**10+**
1. articles did you publish	1	2	3	4	5
2. books did you publish	1	2	3	4	5
3. conference presentations did you give	1	2	3	4	5
4. articles did you peer-review	1	2	3	4	5
5. ILL requests did you make	1	2	3	4	5

B. How often do you?	**never**	**once a semester**	**once a month**	**once a week**	**daily**
6. use library databases within the library premises	1	2	3	4	5
7. use library databases from your home or office	1	2	3	4	5
8. use non-library resources (such as Google) for academic purposes	1	2	3	4	5

C. Please indicate the extent of your agreement with the following statements:	**strongly disagree**		**some-what agree**		**strongly agree**
9. I frequently use the Internet in addition to electronic and print library sources	1	2	3	4	5
10. I sometimes choose a book or article based on its appearance	1	2	3	4	5
11. It is important to me to find documents that were researched thoroughly	1	2	3	4	5
12. I prefer articles that give an overview of my research topic	1	2	3	4	5
13. I choose documents that are written in a clear and plain manner	1	2	3	4	5
14. I frequently choose documents from well-established and well-known journals	1	2	3	4	5
15. I try to find documents written by authors who are respected in their fields	1	2	3	4	5
16. I seek documents based on their apparent scientific level	1	2	3	4	5
17. I prefer documents that were written in my mother-tongue	1	2	3	4	5
18. I find it easy to see how others could improve their research	1	2	3	4	5
19. Sometimes I simply do not have time to seek information	1	2	3	4	5
20. Much of what I have read is written in such a way that it is hard to see what is essential	1	2	3	4	5
21. Most of what I have read for my current research corresponds with my own opinions	1	2	3	4	5
22. I prefer to find only a few documents which exactly match the subject of my research	1	2	3	4	5
23. I prefer to find documents that bring new perspectives on my research topic	1	2	3	4	5
24. I am nearly always willing to wait for an item to arrive via interlibrary loans	1	2	3	4	5
25. I am nearly always willing to pay for an item to arrive via interlibrary loans	1	2	3	4	5
26. Sometimes I choose to manage without documents rather than spending a long time searching for them	1	2	3	4	5
27. I buy books for my research	1	2	3	4	5
28. I am happy to spend time on information-seeking for my research	1	2	3	4	5
29. I am willing to pay for information on the Internet	1	2	3	4	5
30. I only use material which is available immediately	1	2	3	4	5
31. In my opinion, a small number of well-chosen documents is enough for most research projects	1	2	3	4	5
32. I regularly search for information related to my research	1	2	3	4	5

33.	In my opinion, it is worth concentrating on the first few relevant pieces of information one finds in order to save time	1	2	3	4	5
34.	In my opinion, a large amount of background information is essential before starting a research project	1	2	3	4	5
35.	Sometimes I come across information even though I am not consciously looking for it	1	2	3	4	5
36.	I want to find information about all aspects of my research	1	2	3	4	5
37.	If I do not get the desired results when searching in a database, I assume that nothing was written on my topic and stop searching	1	2	3	4	5
38.	In my opinion, a document's title should include the intention of the research	1	2	3	4	5
39.	In my opinion, a document's title should include the design of the research	1	2	3	4	5
40.	In my opinion, a document's title should include the results of the research	1	2	3	4	5
41.	I prefer to receive all the items I need for my research at the same time and not one after another	1	2	3	4	5
42.	In my opinion, reading an article's abstract before requesting ILL will improve satisfaction	1	2	3	4	5
43.	In my opinion, checking how many times an item has been cited before requesting ILL will improve satisfaction	1	2	3	4	5
44.	In my opinion, checking a journal's ranking before requesting ILL will improve satisfaction	1	2	3	4	5
45.	In my opinion, reading the table of contents of a book before requesting ILL will improve satisfaction	1	2	3	4	5
46.	In my opinion, reading a review of a book before requesting ILL will improve satisfaction	1	2	3	4	5
47.	In my opinion, verifying the institutional affiliation of an author before requesting ILL will improve satisfaction	1	2	3	4	5
48.	In my opinion, receiving reference assistance prior to requesting ILL improves the chances of receiving relevant and useful items	1	2	3	4	5
49.	I frequently cite items that I received via ILL	1	2	3	4	5
50.	Most of the items I recently received via ILL were relevant and useful to my research	1	2	3	4	5
51.	I often find that the items I receive via ILL are more valuable to my research than I expected	1	2	3	4	5
52.	The quality of my research would suffer if I didn't receive items via ILL	1	2	3	4	5
53.	I do not use ILL because all my research needs are met by my institution's library	1	2	3	4	5
54.	I do not use ILL because I frequently travel to	1	2	3	4	5

	other libraries to get the publications I need					
55.	I do not use ILL because my colleagues send me all the items I cannot obtain on my own	1	2	3	4	5
56.	I do not use ILL because members of the professional forums and discussion groups I belong to send me the items I cannot obtain on my own	1	2	3	4	5
57.	I do not use ILL because it is too expensive	1	2	3	4	5
58.	If ILL was free I would use it more frequently	1	2	3	4	5
59.	I am not willing to wait for an item to arrive via ILL if it is not available immediately	1	2	3	4	5
60.	I do not use ILL because it is too complicated	1	2	3	4	5
61.	I do not use ILL because I was not aware that there was an ILL service in our library	1	2	3	4	5

62. Comments: _____

D. What is your?							
63. Year of birth	_____						
64. Gender	1. male	2. female					
65. Mother-tongue	1. Hebrew	2. Arabic	3. English	4. Russian	5. other _____		
66. Year of first academic appointment	_____						
67. Academic rank	1. doctoral student	2. non-tenured faculty	3. tenured faculty seeking promotion	4. tenured faculty not seeking promotion			
68. Main academic discipline	1. humanities	2. social sciences	3. law	4. medicine	5. sciences	6. technology	7. other _____

Thank you for your cooperation.

Appendix D: Pilot Questionnaire (in Hebrew)

שאלון סגנונות חיפוש מידע ושימוש בהשאלה בין-ספרייתית

שאלון זה בודק את סגנון חיפוש המידע שלך, ואת הרגליך בשימוש בהשאלה בין-ספרייתית.
המחקר נערך במסגרת לימודי הדוקטורט שלי במחלקה ללימודי מידע באוניברסיטת בר-אילן.
אודה מאוד אם תקדיש כשבע דקות מזמנך למילוי השאלון.
השאלון כתוב בלשון זכר, מטעמי נוחות בלבד.
כל הפרטים יועברו לידי לצורך עיבוד סטטיסטי, ויהיו חסויים.
אם אתה מעוניין לקבל את תוצאות המחקר, אנא צור קשר בדוא"ל porat@univ.haifa.ac.il

אנא בחר את האופציה המתאימה בכל משפט, במידה והיגד כלשהו לא רלוונטי לגביך אנא השאר אותו ריק

A. בשנה האחרונה כמה...	10+	5-10	3-4	1-2	כלל לא
.1 מאמרים פרסמת	5	4	3	2	1
.2 ספרים פרסמת	5	4	3	2	1
.3 מחקרים הצגת בכנסים	5	4	3	2	1
.4 מאמרים של עמיתים ביקרת	5	4	3	2	1
.5 פרסומים הזמנת בהשאלה בין-ספרייתית	5	4	3	2	1

B. באיזו תדירות הינך משתמש ב...	כל יום	מספר פעמים בשבוע	מספר פעמים בחודש	מספר פעמים בסמסטר	כלל לא
.6 מאגרי המידע של הספריה בתוך הספריה	5	4	3	2	1
.7 מאגרי המידע של הספריה מהבית או מהמשרד	5	4	3	2	1
.8 משאבים לא-ספרייתיים (כגון גוגל) לחיפוש מידע לצרכים אקדמיים	5	4	3	2	1

C. אנא ציין עד כמה אתה מסכים עם ההיגדים הבאים	מסכים מאוד				לא מסכים בכלל
.9 אני מרבה להשתמש באינטרנט לצרכים אקדמיים בנוסף למשאבי הספריה	5	4	3	2	1
.10 לפעמים אני בוחר פרסומים על סמך המראה החיצוני שלהם	5	4	3	2	1
.11 חשוב לי למצוא פרסומים ששיטות מחקרם יסודיות מאוד	5	4	3	2	1
.12 אני מעדיף פרסומים שנותנים סקירה של הנושא	5	4	3	2	1
.13 אני נוטה לבחור בפרסומים הכתובים בשפה פשוטה וברורה	5	4	3	2	1
.14 אני מרבה לבחור בפרסומים מכתבי עת מבוססים וידועים	5	4	3	2	1
.15 אני מנסה למצוא פרסומים שנכתבו על ידי חוקרים ידועים ומכובדים בתחומם	5	4	3	2	1
.16 אני בוחר בפרסומים על סמך רמתם המדעית - ככל שניתן	5	4	3	2	1
.17 אני מעדיף פרסומים שכתובים בשפת אמי	5	4	3	2	1
.18 קל לי לראות איך אחרים יכולים לשפר את מחקריהם	5	4	3	2	1
.19 לפעמים אין לי זמן לחפש מידע	5	4	3	2	1
.20 במחקרים רבים שאני קורא קשה למצוא את העיקר	5	4	3	2	1
.21 מחקרים רבים שאני קורא מאשרים את עמדותיי	5	4	3	2	1
.22 אני מעדיף למצוא רק מעט פרסומים שמתאימים בדיוק לנושא המחקר שלי, ולא פרסומים רבים הקשורים אליו רק במעט	5	4	3	2	1
.23 אני מעדיף למצוא פרסומים שמביאים פרספקטיבות חדשות לנושא המחקר	5	4	3	2	1

שלי						
24. אני כמעט תמיד מוכן לחכות לקבלת פרסומים באמצעות שירותי השאלה בין-ספרייתית	5	4	3	2	1	
25. אני כמעט תמיד מוכן לשלם עבור קבלת פרסום באמצעות שירותי השאלה בין-ספרייתית	5	4	3	2	1	
26. לפעמים אני בוחר לוותר על פרסום במקום לחפש אותו זמן רב	5	4	3	2	1	
27. אני קונה מכספי ספרים למחקרי	5	4	3	2	1	
28. אני שמח להשקיע זמן בחיפוש מידע למחקרי	5	4	3	2	1	
29. אני מוכן לשלם עבור פרסומים שאני מוצא באינטרנט	5	4	3	2	1	
30. אני משתמש רק בפרסומים הנגישים באופן מיידי	5	4	3	2	1	
31. לדעתי, מספר קטן של פרסומים שנבחרו בקפדנות מספיק לפרויקט מחקרי	5	4	3	2	1	
32. אני מחפש מידע למחקרי לעתים קרובות	5	4	3	2	1	
33. לדעתי, כדאי להתרכז בפרסומים הרלוונטיים הראשונים שנמצאים - כדי לחסוך זמן	5	4	3	2	1	
34. לדעתי, לפני שמתחילים במחקר חדש, חשוב לקרוא חומר רקע רב	5	4	3	2	1	
35. לפעמים אני נתקל במידע, גם אם לא חיפשתי אותו	5	4	3	2	1	
36. אני מעוניין למצוא מידע על כל האספקטים של המחקר שלי	5	4	3	2	1	
37. אם אינני מקבל את התוצאות הדרושות במאגר מידע כלשהו - אני מניח שלא נכתב דבר על הנושא, ומפסיק לחפש	5	4	3	2	1	
38. לדעתי, כוונת המחקר צריכה להיכלל בכותרת הפרסום	5	4	3	2	1	
39. לדעתי, שיטות המחקר צריכות להיכלל בכותרת הפרסום	5	4	3	2	1	
40. לדעתי, תוצאות המחקר צריכות להיכלל בכותרת הפרסום	5	4	3	2	1	
41. חשוב לי שכל הפרסומים שאני צריך למחקרי יגיעו ביחד, ולא בפרקי זמן גדולים בין פרסום לפרסום	5	4	3	2	1	
42. לדעתי, קריאת תקציר לפני ביצוע הזמנת השאלה בין-ספרייתית, ישפר את שביעות הרצון מהפרסום	5	4	3	2	1	
43. לדעתי, בדיקת מספר הפעמים שציטטו פרסום מסוים לפני ביצוע הזמנת השאלה בין-ספרייתית, ישפר את שביעות הרצון מהפרסום	5	4	3	2	1	
44. לדעתי, בדיקת דירוג כתב העת לפני ביצוע הזמנת השאלה בין-ספרייתית, ישפר את שביעות הרצון מהפרסום	5	4	3	2	1	
45. לדעתי, קריאת תוכן העניינים של ספר לפני ביצוע הזמנת השאלה בין-ספרייתית, ישפר את שביעות הרצון מהפרסום	5	4	3	2	1	
46. לדעתי, קריאת ביקורת על ספר לפני ביצוע הזמנת השאלה בין-ספרייתית, ישפר את שביעות הרצון מהפרסום	5	4	3	2	1	
47. לדעתי, בדיקת ההשתייכות המוסדית של המחבר לפני ביצוע הזמנת השאלה בין-ספרייתית, ישפר את שביעות הרצון מהפרסום שהוזמן	5	4	3	2	1	
48. לדעתי, קבלת עזרה מספרן יעץ לפני ביצוע הזמנת השאלה בין-ספרייתית, יעלה את הסיכוי לקבל פרסום רלוונטי ושימושי	5	4	3	2	1	
49. אני מרבה לצטט פרסומים שקבלתי באמצעות שרותי השאלה הבין-ספרייתית	5	4	3	2	1	
50. רוב הפרסומים שקבלתי לאחרונה באמצעות שרותי השאלה בין-ספרייתית היו רלוונטיים ושימושים למחקרי	5	4	3	2	1	
51. לעיתים קרובות אני מוצא כי פרסומים שאני מקבל באמצעות שירותי השאלה בין-ספרייתית תרמו למחקרי יותר ממה שציפיתי	5	4	3	2	1	
52. איכות המחקר שלי הייתה נפגעת בהיעדר שימוש בשירותי השאלה בין-ספרייתית	5	4	3	2	1	
53. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שכל צורכי המחקר שלי נענים על ידי הספריה	5	4	3	2	1	
54. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שאני נוסע לספריות אחרות בארץ או בחו"ל לעתים קרובות	5	4	3	2	1	
55. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שעמיתיי שולחים לי את הפרסומים שאינני מצליח להשיג בעצמי	5	4	3	2	1	
56. אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שאנשים	5	4	3	2	1	

	בפורומים/קבוצות דיון שולחים לי את כל מה שאני לא מצליח להשיג בעצמי					
.57	אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שעלותם גבוהה עבורי	5	4	3	2	1
.58	אני מניח שאילו שירותי השאלה בין-ספרייתית היו בחינם - הייתי משתמש בהם הרבה יותר	5	4	3	2	1
.59	באופן כללי, אינני מוכן לחכות לפרסום שיגיע באמצעות שירותי השאלה בין-ספרייתית, אם אין אפשרות לקבל אותו מיידית	5	4	3	2	1
.60	אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שמסובך מדיי לבצע הזמנה	5	4	3	2	1
.61	אינני משתמש בשירותי השאלה בין-ספרייתית, מכיוון שאינני מודע לקיום שירות זה	5	4	3	2	1

62. הערות: _____

D. ציין								
63. שנת לידה	_____							
64. מין	1 זכר	2 נקבה						
65. שפת-אם	.1 עברית	.2 ערבית	.3 אנגלית	.4 רוסית	.5 אחרת _____			
66. השנה בה מונית לתפקידך האקדמי הראשון	_____							
67. דרגתך האקדמית	.1 סטודנט לתואר שלישי	.2 סגל ללא קביעות	.3 סגל עם קביעות השואף לקידום	.4 סגל עם קביעות שאינו שואף לקידום				
68. מהו התחום האקדמי העיקרי שלך	.1 מדעי הרוח	.2 מדעי החברה	.3 משפטים	.4 רפואה	.5 מדעים	.7 טכנולוגיה	.8 אחר _____	

תודה רבה על שיתוף הפעולה!

Appendix E: Questionnaire about Information Behaviour (English Translation)

1. What is your major subject?
_____

2. What is the topic of your master thesis?
_____
_____.

3. How long have you been working on your master thesis? *Mark the right alternative.*
__ 0-6 months
__ 7-12 months
__ 1-2 years
__ 2-3 years
__ 3 - years

4. Have you worked full-time or part-time on your master thesis? *Mark the right alternative.*
__ full-time
__ part-time

5. In what phase of your master thesis project are you at the moment? *Mark the right alternative (you may choose several alternatives).*

__ developing the research plan
__ reading background material
__ planning the collection of data
__ data-collection
__ analyzing the data
__ interpreting the results
__ final stage

6. What is your average study result? *Mark the right alternative*
___ satisfactory
___ good
___ excellent

In the following you will be asked how you use information related to your master thesis.

Answer the questions on a scale from 1 to 5 - 1. false 2. somewhat false 3. neutral 4. somewhat true 5. true - Please note! Avoid alternative 3 unless absolutely necessary

7. These questions measure cognitive aspects of your information seeking
Articles that are published in journals are reliable
Many of the studies I have read about were poorly conducted
I find it easy to see how others could improve their master theses
What is published in books are facts that can be trusted

I tend to agree when I hear someone argue for something
Sometimes I simply do not have time to seek information
Much of what I have read is written in such a way that it is hard to see what is essential
Most of what I have read for my master thesis agrees with my own opinions
I find it difficult to be critical of what I read

8. How do you judge whether documents* found on the Internet are of good enough quality to be used as references in your research?

_____
_____

9. What has affected the results in the studies you have read related to your thesis?
Rank the following criteria from 1 to 4
1 most influential
2 second influential
3 third influential
4 least influential

The opinion of the author
The society where the study was done
The method
The phenomena itself (previous knowledge investigated item)

10. Please mark in percentage how much you think the following criteria affect the way you choose information:
When I search for information for my thesis it is important for me to find:

. only a few documents which exactly match the subject of my thesis _____%.
. many documents which are at least somewhat related to my thesis _____%.
The total number should equal 100 %.

** document = written information like articles, books, Web pages, manuals, encyclopedias, newspapers.*

Besides the content of a document there may be other criteria which affect the choice of information source.

11. How do you usually judge whether a document fits the topic of your thesis?
Please mark the table
1 not important
2 of minor importance
3 neutral
4 fairly important
5 important

Type of material (if you for instance prefer to read articles over books).
The appearance of the document (reject a worn out book or a book with small letters).
It is recently written
The document seems thorough

The document gives overview information
It is written in a clear and plain manner
The source (for instance the journal) is well-established and known
The author is respected within his field
The document is of a high scientific level
The language of the document

12. Please mark in percentage how much you think the following criteria affect the way you seek information

When I search for information for my thesis it is important for me to find:
· documents which confirm my own thoughts about the subject _____%.
· documents which give me new ideas_____%.
The total number should equal 100 %.

13. Please mark in percentage how often you choose:
· material which brings new perspectives on your field of study _____%
· documents whose contents are recognized and accepted in your field of study _____%.
The total number should equal 100 %.

14. The following group of questions regard how much you are willing to spend, for instance of your time and money, on your thesis work

1 false.
2 somewhat false
3 neutral.
4 somewhat true
5 true

I use interlibrary loans
I am willing to wait more than 2 weeks for an interlibrary loan request.
I am willing to pay for interlibrary loans in order to get the material I need
I choose to manage without documents rather than spend much time searching for them
I buy books for my thesis
It is ok to spend time on information seeking for a master thesis
I am willing to pay for information on the Internet.
I only use the material which is available in the nearest libraries
I prefer to use material which is easily available on the Internet
Information seeking is a work and time consuming phase of the thesis work

15. The following questions aim at measuring the way you search for information:
In my opinion a small amount of well chosen documents is enough
for writing a master thesis
I regularly search for information related to my thesis topic
In my opinion it is profitable to concentrate on the first relevant information you find. since it saves time
In my opinion a large amount of background information is essential before starting a

research project
It is important not to overlook relevant information when seeking for information
Sometimes I come across information even though I am not consciously looking for it
I want to find information about all aspects of my thesis subject
There is a risk to overlook important information if one does not carefully examine the documents one finds

16. Please mark in percentage how true these statements are for you:
How do you react if you search for information in a database and do not get any results on your query?

· Assume nothing is written on the topic_____%.
· Continue to search in other databases_____%.
The total number should equal 100 %.

17. When I search for information in a database:

· I plan my searches in advance _____%.
· My search is gradually developed_____%.
The total number should equal 100 %.

18. The last questions concern the information sources you use.

In the first column, mark the information sources you have used for your thesis
In the second column, mark the three sources you have used most frequently
1 most frequently.
2 second most frequently.
3 third most frequently.

Journals on the Internet
Other material on the Internet.
TV
Radio
Encyclopedias
Journals
Books
Newspapers
Teacher, professor
Supervisor
Other students
Friends
Conferences, courses
Brochures, manuals
Presentations, lectures
Associations
Companies
Others, what_____

19. Which of the above mentioned sources has been most useful to you?

_____
_____

20. Why?

_____
_____
_____
_____

Thank you for taking time to complete the questionnaire!

Note. From *Fast Surfers, Broad Scanners and Deep Divers*, (P.295-302), by J. Heinstrom, 2002, Abo, Finland: Abo Akademi University Press. Copyright 2002 by Abo Akademi University Press. Reprinted with permission.

Appendix F: Cover Letter

Dear Faculty member/doctoral student,

Would you be so kind as to answer the following anonymous electronic questionnaire which I am distributing as part of my doctoral research on styles of information-seeking and interlibrary loan use among faculty and doctoral students at the University of Haifa/Technion?

As nearly 80% of faculty and doctoral students do not use interlibrary loans, your responses to the questionnaire are really important to me.

It shouldn't take more than seven minutes of your time to fill in.

The questionnaire is accessible via the following link:

http://lib.haifa.ac.il/www/ldr/q.htm

Thank you so much for your cooperation,

Lynne Porat

Doctoral Student,
Dept. of Information Science, Bar-Ilan University and
Head of Interlibrary Loans, University of Haifa

Appendix G: First Reminder

Hello,

A few days ago, I sent you my electronic questionnaire on styles of information-seeking and interlibrary loans. If you have already responded, I would like to thank you very much for taking the time and trouble to do so - I really appreciate it.

If you haven't managed to respond yet, I should be most grateful if you could find the time to fill in the questionnaire within the next few days. As the questionnaire was only sent to a few people in each department, your opinions are very important to my research.

The questionnaire is accessible via the following link:

http://lib.haifa.ac.il/www/ldr/q.htm

Thank you for your assistance,

Lynne Porat

Doctoral Student,
Dept. of Information Science, Bar-Ilan University and
Head of Interlibrary Loans, University of Haifa

Appendix H: Second Reminder

Shalom faculty member/doctoral student,

About a week ago I sent you my questionnaire on information-seeking styles and interlibrary loans. If you have already responded, thank you so much for taking the time and trouble to do so and please accept my apologies for contacting you again. As the completed questionnaires are sent to me anonymously, I do not know who responded and who didn't.

If you haven't responded yet, I would really appreciate it if you could find the time to complete the questionnaire. If you would like to receive a copy of the questionnaire in English or to fill it in by telephone, please contact me. As I only sent the questionnaire to a few people in each department, every response is important to me.

The questionnaire is accessible via the following link:

http://lib.haifa.ac.il/www/ldr/q.htm

Thank you so much for your help,

Lynne Porat

Doctoral Student,
Dept. of Information Science, Bar-Ilan University and
Head of Interlibrary Loans, University of Haifa

תקציר

האקלים המחקרי היום מאופיין בעיקר על ידי חיפושי מידע באינטרנט. חוקרים נוטים להיעזר באפשרות החיפוש החופשי באינטרנט בשלבים הראשוניים של המחקר בעיקר בשל פשטות החיפוש ובשל האפשרות לקבל תוצאות מהירות, לעומת השימוש במאגרים ספרייתיים ובמקורות מודפסים. עם זאת, הכמות הענקית של המידע הנגיש באינטרנט ובמאגרים הספרייתיים חושפת את החוקרים ליותר ויותר ציטוטים ותקצירים, אך לא בהכרח למסמכים עצמם. למרות הכמות ההולכת וגדלה של פרסומים הנגישים באופן חופשי דרך האינטרנט, יש עדיין דרישה מתמדת בספריות האקדמיות להשאלה בין-ספרייתית של פריטי מידע, עקב הגידול המתמיד במספר הפרסומים המדעים היוצאים לאור במהדורות מודפסות ואלקטרוניות, ובשל העובדה שלא ניתן למצוא אותם בספרייה אחת.

מטרת המחקר הנוכחי הייתה לבדוק אם יש הבדלים בין חוקרים המשתמשים בהשאלה בין-ספרייתית ובין אלה שאינם משתמשים בשירות זה, והאם משתמשי השאלה בין-ספרייתית תופסים גורמים מסוימים כתורמים לשביעות רצונם מהפריטים שסופקו להם. שאלת המחקר הראשונה ביקשה לבדוק מהם ההבדלים בין משתמשי השאלה בין-ספרייתית ובין אלה שאינם משתמשים בשירות זה מבחינת הגורמים הבאים: א. תדירות השימוש בספרייה, ב. סגנון חיפוש המידע, ג. מאפייניהם הדמוגראפיים כולל גיל, מגדר ושפת אם, ד. הפרופיל האקדמי הכולל ותק, סטאטוס אקדמי (קביעות/קידום), רמת הפרודוקטיביות ותחום אקדמי עיקרי. שאלת המחקר השנייה ביקשה לבדוק עד כמה משפיעים גורמים מסוימים על מידת שביעות הרצון מהפריטים שסופקו להם באמצעות שירותי ההשאלה הבין-ספרייתית לפי הגורמים הבאים: א. עיון במקורות מידע משניים, ב. בחירת כותרים אינפורמטיביים או אינדוקטיביים (המצביעים על כוונת המחקר או על תוצאותיו), ג. התייעצות עם ספרני יעץ, ד. קבלת פרסומים בזמן.

המחקר השתמש בסקר בשאלון אינטרנטי שחובר במיוחד עבור מחקר זה, ונשלח בדואר אלקטרוני למדגם של סגל ודוקטורנטים בשני מוסדות מחקר שונים. באוניברסיטת חיפה הופצו 330 שאלונים, ובטכניון הופצו 1090 שאלונים, שהביאו לשיעור היענות של 37% באוניברסיטה ולשיעור של 18% בטכניון. שני הממצאים המשמעותיים של המחקר היו:

א. הפרופיל של המשתמש בשירותי השאלה בין-ספרייתית הוא פרופיל של חוקר במדעי הרוח, המשתמש ברוב שירותי הספרייה בתדירות גבוהה , בעל סגנון חיפוש מידע מעמיק, בעל ותק במוסד ופרודוקטיבי יותר מהממוצע.

ב. משתמשי השאלה בין-ספרייתית שסברו שקריאת מקורות משניים והתייעצות עם ספרני יעץ לפני ביצוע הזמנת השאלה בין-ספרייתית הם גורמים מועילים ומשפיעים על שביעות רצונם, דיווחו על כך שהפרסומים שסופקו להם באמצעות שירותי השאלה הבין-ספרייתית עברו את ציפיותיהם מבחינת הרלוונטיות, ובסופו של דבר תרמו להם ושולבו במחקריהם.

בנוסף, המחקר גילה שישנן סיבות נוספות לאי-שימוש בהשאלה בין-ספרייתית מעבר לסיבות הידועות כגון חוסר מודעות ועלות: א. חוקרי במדעים ציינו שרוב הפרסומים הדרושים להם נמצאים באופן חופשי באינטרנט, דבר שהפך את הספריות ואת שירותי ההשאלה הבין-ספרייתית למיותרים בעיניהם. ב. במדעי הרוח היו חוקרים שהעדיפו לקנות ספרים בתקציבם הפרטי, ורק כאשר לא ניתן לקנות ספרים מסוימים, להזמינם באמצעות שירותי השאלה בין-ספרייתית.

הממצאים של המחקר הנוכחי תורמים להבנה של פרופיל משתמשי ההשאלה הבין-ספרייתית לעומת אלה שאינם משתמשים בשירות זה. בנוסף, המחקר מצביע על הגורמים הנתפסים על ידי משתמשי השאלה בין-ספרייתית כמועילים בהשגת תוצאות משביעות רצון. יישום ממצאים אלה בספריות אקדמיות יכול לעזור לספרנים לזהות משתמשי השאלה בין-ספרייתית פוטנציאליים ולעודד אותם להשתמש בשירות. כמו כן, מודעות הספרנים לחשיבות השימוש בכלים ביבליוגראפיים והתייעצות בספרני יעץ לפני ביצוע ההזמנות השאלה בין-ספרייתית יכולה להביא לשימוש רב יותר בכלים אלה בשלב ההתלבטות.

למרות תחזיות פסימיות לגבי עתיד השאלה בין-ספרייתית בספריות בשל השימוש הרחב בפרסומים אלקטרוניים באקדמיה, מחקר זה מראה ששירותי השאלה בין-ספרייתית אינם עומדים להיעלם בעתיד הקרוב. אומנם בתחום המדעים קיימת ירידה בביקוש למאמרים מספריות אחרות, אבל במדעי הרוח יש עליה בדרישה לספרים אזוטריים בשפות שונות שקשה להשיגם בלי ידע וניסיון מקצועי של ספרני השאלה בין-ספרייתית. עיקר חשיבותו של מחקר זה הוא בתרומתו להכרה בשירות ההשאלה הבין-ספרייתית כשירות ספרייתי חיוני לחוקרים רציניים.

תוכן העניינים

אוניברסיטת בר-אילן

השאלה בין-ספרייתית והמחקר האקדמי:
ההבדלים בין חוקרים המשתמשים ואלה שאינם משתמשים בהשאלה בין-ספרייתית והגורמים המשפיעים על תוצאות משביעות רצון

חיבור לשם קבלת התואר "דוקטור לפילוסופיה"

מאת:

לין פורת

המחלקה ללימודי מידע

הוגש לסנט של אוניברסיטת בר-אילן

רמת גן **אדר תשס"ח**

עבודה זו נעשתה בהדרכתה של פרופ׳ שרה פיין
מן המחלקה ללימודי מידע של אוניברסיטת בר-אילן.