

Information seeking behavior of LIS students: the case of Greece

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***Abstract.** The purpose of the present study is to give an insight into the information seeking behavior of LIS undergraduate students in Greece. More specifically, the following research questions were addressed: (1) What information sources do LIS students most use in order to find course-related information? (2) What searching strategies are actually employed by students when using electronic resources, and how is the information they find evaluated? (3) How effective do students perceive their searches? (4) Are factors such as gender, year of study, or experience with computers related to students' information seeking behavior? The majority of respondents demonstrated low to medium information seeking skills. Search engines dominated, topping the list of information sources most used to find course related information. Students also seemed to value their classmates as sources of information, while browsing library shelves was the third more frequently used strategy for locating information. With regard to searching techniques, keyword and phrase searching emerged as the most preferred method for searching electronic resources. When evaluating their search results, students tended to consider more often the title of the source, the title of the journal and the abstract of the source. Year of study, knowledge of English language, computer and internet use, and experience with bibliographic databases emerged as factors related to more sophisticated information behavior. Findings provide empirical evidence of the need for LIS faculty to refocus their teaching and introduce in their classes tasks and assignments which require students to use a variety of sources and search strategies.*

Keywords: information behavior, LIS students, Greece

Introduction

The proliferation of digital technologies and the Internet shapes undergraduates' information behavior, and poses many challenges to educators and librarians. Information behavior of university students has been extensively studied. Despite the substantial research on the topic, little has been written on how LIS students search for and gather information, perhaps because librarians and LIS researchers are mainly concerned with investigating the information practices of the diverse library clientele, or because we all assume that LIS students are by default experts in finding and using information effectively. But is this really the case? The purpose of the present study is to give an insight into the information seeking behavior of LIS undergraduate students in Greece and to explore the factors that influence such behavior. Research into and study of LIS students' information behavior is of vital importance, since these students are expected in their future occupational role to assist others in the activities of information seeking. LIS educators can use this knowledge to re-orient their teaching methods and content in order to provide students with the skills needed to succeed in today's information environment.

Literature review

There are many information seeking studies referring to the higher education sector. Some of these develop models and provide theoretical frameworks (Ellis, 1989; Ford, 2004; Foster, 2004; Kuhlthau, 2004; Leckie, Pettigrew & Sylvain, 1996; Urquhart & Rowley, 2007; Wilson, 1999), while others examine the effect of certain factors on students' information behavior, such as age, gender or nationality (Ajiboye & Tella, 2007; Al-Muomen, Morris & Maynard, 2011; Haglund & Olsson, 2008; Hargittai & Shafer, 2006; Hargittai, 2010; Lim and

Knon, 2010; Rowlands & Nicholas, 2008; Urquhart and Yeoman, 2010; Weiler, 2005; Whitmire, 2002); class standing (Callinan, 2005; O'Brien & Symons, 2007); cognitive style, experience with electronic resources and task (Aula, Jhaveri & Kaki, 2005; Kim, 2001); and cultural aspects, such as English language proficiency (Al-Muomen, Morris & Maynard, 2011). Many authors have examined the effect of the discipline on information behavior with inconclusive results (Banwell & Gannon-Leary, 2000; Ellis, Cox & Hall, 1993; George et al., 2006; Heinstrom, 2003; Junni, 2007; Kerins, Madden & Fulton, 2004; Korobili, Malliari & Zapounidou, 2011; Makani & Woo Shue, 2006; Malliari, Korobili & Zapounidou, 2011; O'Brien & Symons, 2007; Rowlands & Nicholas, 2008; Sadler & Given, 2007; Whitmire, 2002). Resource preference has been also studied extensively. Although there is evidence that undergraduates rely on books (Callinan, 2005; Dilevko & Gottlieb, 2002; Metzger, Flanagin, & Zwarun, 2003), the majority of studies indicate the Internet dominates students' academic information-seeking practices (Ajiboye & Tella, 2007; Barrett, 2005; Bloom & Deyrup, 2012; Branch, 2003; De Rosa et al., 2011; Fast & Campbell, 2004; George et al., 2006; Griffiths & Brophy, 2005; Lee, 2008; Liao, Finn & Lu, 2007; Makani & Woo Shue 2006; Manikandan, Esmail & Nagarajan, 2013; Vezzozzi, 2009). When using online sources, students generally demonstrate poor and unsophisticated search skills (Bloom and Deyrup, 2012; Maughan, 2001; O'Brien and Symons, 2007; O'Hanlon, 2002; Urquhart and Rowley, 2007; Wilson, 2004). There is also evidence that people, such as professors, instructors, friends and colleagues play an important role in students' information seeking (Barrett, 2005; Branch, 2003; Callinan, 2005; George et al., 2006; Kerins, Madden & Fulton, 2004; Vezzozzi, 2009; Wilson, 2004), while librarians are not frequently consulted (Haglund & Olsson, 2008; Kerins, Madden & Fulton, 2004).

These findings are not very dissimilar from those reported for LIS students. A study conducted by Bronstein (2010) uncovered that the main source type used by Israeli students were the networked sources followed by human sources. Printed sources and library professionals were the two types least used. Tanackovic, Lacovic and Stanarevic (2012) found that the most popular method employed by LIS students in Croatia for finding information sources was searching the Internet, followed by searching library's catalog and databases, and consulting a mentor. Most respondents started their search using simple keywords and they turned to advanced techniques only when the results of the initial search were not satisfactory. A very recent study by Krakowska (2013) exploring selected aspects of the information behavior among LIS students in Poland confirmed the predominance of the Internet, while library catalogue and library shelves were also emerged as frequently used sources of course-related information. With regard to resources' quality evaluation, important criteria were familiarity with the source, whether an instructor mentioned using this source and whether the source had a bibliography or reference list. The author concluded that students seem to be unable to take full advantage of available sources, even those they are already familiar with, they do not highly value librarians and avoid traditional library services.

Research objectives and methodology

In the present study the following research questions were addressed: (i) what information sources do LIS students most use in order to find course-related information? (ii) what searching strategies are actually employed by students when using electronic resources, and how is the information they find evaluated? (iii) how effective do students perceive their searches? (iv) are factors such as gender, year of study, or experience with computers related to students' information seeking behavior?

Data was collected through questionnaire survey from two LIS departments in Athens and

Thessaloniki. The survey was carried out during the winter and spring semester of the academic year 2011-2012. Printed questionnaires were distributed to students of both departments during classes. A total of 564 questionnaires were completed and used for data analysis.

Results

Profile of the participants

The majority of them were females with ages ranged from 18 to 42 years old (Mean 22.4, *SD* 3.89). Most of them claimed to have a good command of English language and have been using computers for over 5 years. Students were asked to state the frequency of computer and Internet use for a variety of tasks and the results indicated that the majority of them were rather regular users, spending more than 7 hours per week on the computer, and that the most popular applications were those associated with communication and entertainment.

Information seeking behavior

Users were asked to state the frequency of using several sources and practices for locating information for educational purposes. Results showed that 47.2% of the respondents were never or seldom engaged in any information retrieval activity. Another 42.9% were engaged often or quite often and 9.9% very often. Search engines dominated, topping the list of information sources most used to find course related information. Students also seemed to value their classmates as sources of information, while browsing library shelves was the third more frequently used strategy for locating information. With regard to searching techniques they were employing in order to find online content, keyword and phrase searching emerged as the most preferred method for searching electronic resources, followed by “searching within results”, “truncation” and “Boolean operators”.

When students were asked what they did if their original search was proven inappropriate, nearly half of them answered that often, quite often or very often stopped searching because they assumed that there was no relevant information about their topic. Those who modify their search in order to get better results, mostly select different keywords, more rarely try another source and even more rarely change the overall search strategy. When evaluating their search results, students tend to consider more often the title of the source, the title of the journal and the abstract of the source. It should be noted, however, that more than half of the respondents had never or seldom used any of the criteria included in the question. With regard to the perceived quality of their search results, the majority of students believed that the information they locate in electronic resources is accurate, up-to-date, easy to understand, useful and appropriate for the topic they investigate.

We also wanted to examine which factors influence the information behavior of students. Spearman correlations were performed and indicated positive correlations between use of advanced search techniques and advanced evaluation criteria on one hand, and year of study, knowledge of English language, computer experience and experience with networked resources (databases, e-journals and web search engines) on the other (Table 1).

Table 1. Correlation of background variables with searching behavior

	Advanced techniques	Advanced evaluation	Search modification		
			Change keywords	Change source	Change strategy
Year of study	.112**	.171**	0.70	.187**	.127**
English language	.380**	.356**	0.79	.218**	.164**
Computer experience	.204**	.179**	.296**	.137**	.293**
Experience with databases/e-journals	.323**	.342**	.168	.188**	.234**
Experience with WWW	.105*	.112**	.290**	.088*	.108*

* $p < 0.05$, ** $p < 0.01$

Discussion and conclusions

The majority of the sample in this study demonstrated a low to medium level of information seeking behavior. The heavy use of the Internet by the majority of the students as reported in this paper confirms the well-documented growing dependence on public search engines or internet sites, usually Google, by undergraduate students. Classmates were the second most frequently source, a finding consistent with previous studies (Kim & Sin, 2007; Majid & Ai, 2002; Rieh, 2007). One can assume that classmates were mostly utilized by respondents because they represent a convenient, easily accessible source when students seek information for coursework. The preference towards browsing library shelves, although surprising, is in accordance with previous research suggesting the preference of undergraduates towards academic library's collection (Krakowska, 2013; Lee, 2008; Tanackovic, Lacovic & Stanarevic, 2012). Another interesting finding was the low use of databases and e-journals. While there are studies that support the low use of databases and electronic journals (Ajiboye & Tella, 2007; Bhatia & Rao P, 2011; Majid & Ai, 2002) there is also evidence that databases, especially those offering the full-text of articles, are among the most popular sources students use for obtaining information for their assignments (Lee, 2008; Tanackovic, Lacovic & Stanarevic, 2012). A reason for the reluctance of Greek students to use databases and e-journals can be possibly attributed to the difficulties they experience with English language. Although the majority of them reported very good command of English, there is anecdotal evidence that their English is not good enough for reading the scholarly literature.

Keyword searching appeared to be the most popular searching technique. When respondents failed to find satisfactory results, they tended to try other keyword(s) or other source(s) rather than modifying the search strategy. These findings confirm previous studies, (Bloom & Deyrup, 2012; Lee, 2008; Kerins, Madden & Fulton, 2004; Makani & Woo Shue, 2006; Tanackovic, Lacovic & Stanarevic, 2012). Again, the barrier of language is a factor that discourages our students from using more advanced techniques, such as truncation or Boolean operators. They seem, however, to be aware of the factors that contribute to successful

searches, as well as of the criteria used to evaluate information sources. They actually use a range of evaluation criteria, with a slight preference over the title of the source, which makes sense, if one considers that they mostly use the Internet, where other criteria, such as descriptors, do not apply. Students' information skills seem to be affected by attendance to the Department of Library Science, since year of study is associated with the use of advanced search techniques and the employment of more elaborated criteria for evaluating the relevance of retrieved information. After receiving formal training in online information retrieval and critical evaluation of sources, and being exposed to a wide range of databases they are more likely to become more effective information researchers.

The findings of the present study have significance for LIS education and can inform LIS departments in Greece. Although the typical curriculum of LIS departments includes a wide variety of modules on information retrieval there is room for improvements. Students would benefit from additional training, particular in the area of advanced search techniques. Faculty should consider new, more challenging teaching methods, with more hands-on experiences and research-oriented assignments.

More research is necessary to verify and expand the results of the present study. It is desirable to complement the quantitative findings reported here with qualitative data, in order to gain a better understanding of information behavior and the factors affecting it. Internet usage logs, log analysis, in-depth interviews, observation, and discussion groups can better explain the observed behavior and give a deeper insight on how students seek and use information.

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