
Surveying the Use of Theory in Library and Information Science Research: A Disciplinary Perspective

LYNNE (E. F.) McKECHNIE AND KAREN E. PETTIGREW

ABSTRACT

A CONTENT ANALYSIS OF 1,160 Library and Information Science (LIS) articles published in six LIS journals between 1993 and 1998 was conducted to examine the use of theory in LIS research. Overall, 34.2 percent of articles incorporated theory in either the title, abstract, or text for a total of 1,083 theory incidents or an average of .93 incidents per article. Articles dealing with topics from the humanities (e.g., information policy, history) had the highest rate of theory use with 1.81 incidents per article, followed by social science papers (e.g., information behavior, management) with .98 incidents per article and science articles (e.g., bibliometrics, information retrieval) with .75 theory incidents per article. These findings imply that differences exist in the use of theory in LIS that are associated with the broad disciplinary content of the research. These differences may arise from variant conceptions of and approaches to the use of theory in the research traditions of the humanities, social sciences, and sciences. It is suggested that the multidisciplinary background of LIS researchers provides a rich but still underutilized opportunity for the use and development of theory within LIS.

BACKGROUND

Scholars have been concerned with theory and written about it in diverse ways for many years. Basic definitions found within the literature include: "A set of explanatory concepts" (Silverman, 1993, p. 1); "a statement or group of statements about how some part of the world works—frequently

Lynne (E. F.) McKechnie, Associate Professor, Graduate Program of Library and Information Science, Faculty of Information and Media Studies, Middlesex College, University of Western Ontario, London, Ontario N6A 5B7, Canada

Karen E. Pettigrew, Assistant Professor, Information School, University of Washington, Box 352840, Seattle, WA 98195-2840

LIBRARY TRENDS, Vol. 50, No. 3, Winter 2002, pp. 406–417

© 2002 The Board of Trustees, University of Illinois

explaining relationships among phenomena" (Vogt, 1993, p. 232); "a systematic explanation for the observed facts and laws that relate to a particular aspect of life" (Babbie, 1992, p. 55); "generalizations which seek to explain relationships among phenomena" (Grover & Glazier, 1986, p. 228); and, in reference to LIS theory, an "explanation of information systems efficiency, of user behavior, of the function of different search agents such as descriptors, citation, titles, and so on" (Hjørland, 1998, p. 607).

Preoccupation with the use and development of theory is common within academic disciplines, including LIS. According to the philosophy of science, the use of theory in scholarly research is a distinguishing characteristic of a discipline's academic maturity (Hauser, 1988). LIS literature is replete with calls for making the field more theoretical, including those by Grover & Glazier (1986), Templeton (1994), and Hjørland (1998). While the development of theory unique to LIS is essential to the growth of the discipline, it must also be remembered, as is so aptly stated by LIS scholar Elfreda Chatman (1996), that "[w]orking with conceptual frameworks and empirical research has never been an easy task" (p. 205).

Little research has actually examined the use of theory in LIS. The few existing studies concluded that most LIS research is atheoretical, reporting rates of theory use ranging from 10 to 21 percent (Feehan et al., 1987; Jarvelin & Vakkari, 1990; Julien, 1996; Julien & Duggan, 2000; Nour, 1985; Peritz, 1980). This paper arises from a larger study of the use of theory in LIS, funded by a research award from the Association for Library and Information Science Education (ALISE). The results have been reported previously in McKechnie & Pettigrew (1998), Pettigrew & McKechnie (2001), and McKechnie, Pettigrew, & Joyce (2001). The findings of this larger study indicate that theory was discussed in 34.2 percent of 1,160 articles published in six prominent LIS journals from 1993 to 1998 which, when compared to the results of earlier studies, suggests an increase in the use of theory within LIS. However, theory was not used consistently across the articles. For example, some researchers simply mentioned a theory while others explicitly used a theory to frame the study, develop research questions, and analyze results. A particular "theory" might be referred to as a model, conceptual construct, or a grand theory by different scholars in different papers and, on occasion, by a single scholar within the same paper. Theory citation practices also varied widely: While most scholars identified and discussed theories within the text of their papers and provided bibliographic references for the theories used, only a few mentioned theories in article abstracts and many of the references provided referred to secondary rather than primary resources for the theory. Thus, a major finding of this study was that LIS scholars do not share a single perspective about what theory comprises and how it should be used within research. Chatman (1996) is indeed correct when she claims that using and developing theory is hard work.

The current article explores a possible explanation for this phenomenon of inconsistent use. Are the different approaches to theory, as evident in the LIS literature, related to the multidisciplinary backgrounds of LIS researchers and the multidisciplinary nature of the content of the field? More specifically, do the different research approaches and traditions associated with work in the broad disciplines of the humanities, social sciences, and sciences have an impact on the use of theory in LIS research? And is this evident in the published reports of LIS research?

METHOD

To answer these research questions, a content analysis was conducted of 1,160 articles that appeared from 1993 to 1998 in six journals:

1. *Information Processing and Management (IP&M)*; six issues per year
2. *Journal of the American Society for Information Science and Technology (JASIST)*; ten issues per year for 1993–1995; twelve issues per year for 1996 and 1997; 14 issues for 1998)
3. *Journal of Documentation (JDOC)*; quarterly)
4. *Journal of Education for Library and Information Science (JELIS)*; quarterly)
5. *Library and Information Science Research (LISR)*; quarterly)
6. *The Library Quarterly (LQ)*; quarterly)

These journals were chosen because they are prominent and contain peer reviewed articles covering most areas of research in LIS. All articles except for columns, book reviews, and news items, such as conference announcements and obituaries, were coded for the authors' use of theory.

Each article was coded for the first author's affiliation as listed in the article (e.g., private sector, government, academic department), subject area (e.g., information retrieval, human information behavior, history), and type of article (e.g., report of empirical research, literature review, method paper). Subjects were further grouped under the broad disciplinary categories of humanities (e.g., information policy), social sciences (e.g., management), and sciences (e.g., bibliometrics). The code book is appended. Theories cited in the articles were counted and coded as to whether they originated within LIS, the sciences, social sciences, or humanities, and where they were used in the article (i.e., title, abstract, or main text). No matter how many times a theory was mentioned in a particular article, it was only counted once. To test for inter-coder reliability, thirty articles (five randomly chosen from each of the six journals) were independently coded by three individuals. The final rate of agreement for all coding decisions was 94.7 percent suggesting that the coding scheme was reliable and valid.

FINDINGS

The findings from the analysis of the 1,160 articles in terms of their subject content by the broad disciplinary categories of humanities, social sci-

ences, and sciences are presented in terms of the basic characteristics of the articles (i.e., journal of publication, subject content, author affiliation, and type of article) and the description of theory deployment (i.e., frequency of theory use, originating broad discipline, and use within the article).

Basic Characteristics

Of the 1,160 articles analyzed (see Table 1), the majority were published in *JASIST* (40.9 percent) and *IP&M* (27.0 percent).

Articles dealing with topics associated with the sciences comprised 59.5 percent ($n = 690$) of the sample and accounted for 84.7 percent of the content of *IP&M*, 66.6 percent of the content of *JDOC*, and 66.0 percent of *JASIST*. Articles from the broad discipline of the social sciences represented 30.0 percent ($n = 348$) of the sample. Social science articles were most prominent in *JELIS* (89.6 percent of the content), *LISR* (57.9 percent), and *LQ* (48.7 percent). Humanities articles constituted 10.5 percent ($n = 122$) of the sample and were most frequently found in *LQ* (36.8 percent of the content). All six journals published articles from all three disciplines during the six-year period studied. Therefore, while science may have been the most frequently found content in *IP&M*, the journal also published articles dealing with the social sciences (8.6 percent) and humanities (6.7 percent), and while *LQ* devoted substantial space to humanities work, it also included articles from the social sciences (48.7 percent) and sciences (14.5 percent). Nonetheless, definite trends are apparent in disciplinary publishing patterns for these six journals with humanities, social science, and science materials more likely to be found in some journals than in others. The prominence of science articles is clearly related to the large proportion of articles in the sample from *IP&M* and *JASIST*, which are published more frequently (bimonthly and monthly) than journals like *LQ* and *JELIS*, which include more from the humanities and social sciences but are only issued quarterly.

The primary affiliation (see Table 2) for the first author of over half

Table 1. Number of Articles by Broad Disciplinary Content and Journal.

Discipline	Journal						Total
	IP&M	JASIST	JDOC	JELIS	LISR	LQ	
Humanities	21 (6.7%)	46 (9.7%)	7 (6.7%)	8 (8.3%)	12 (12.6%)	28 (36.8%)	122 (10.5%)
Social Sciences	27 (8.6%)	115 (24.3%)	28 (26.7%)	86 (89.6%)	55 (57.9%)	37 (48.7%)	348 (30%)
Sciences	266 (84.7%)	313 (66%)	70 (66.6%)	2 (2.1%)	28 (29.5%)	11 (14.5%)	690 (59.5%)
Total	314 (27%)	474 (40.9%)	105 (9%)	96 (8.3%)	95 (8.2%)	76 (6.6%)	1160 (100%)

Table 2. Affiliation of First Author by Broad Disciplinary Content (*n* = Number of Articles).

Affiliation of First Author	Discipline			
	Humanities	Social Sciences	Sciences	Total
Private Sector	4 (3.3%)	15 (4.3%)	43 (6.2%)	62 (5.4%)
Government	4 (3.3%)	4 (1.2%)	23 (3.3%)	31 (2.7%)
LIS	85 (69.7%)	242 (69.5%)	307 (44.5%)	634 (54.7%)
Humanities	3 (2.4%)	3 (0.9%)	8 (1.2%)	14 (1.2%)
Social Sciences	14 (11.5%)	38 (10.9%)	68 (9.9%)	120 (10.3%)
Sciences	5 (4.1%)	31 (8.9%)	208 (30.1%)	244 (21.0%)
Don't Know	7 (5.7%)	15 (4.3%)	33 (4.8%)	55 (4.7%)
Total	122 (100%)	348 (100%)	690 (100%)	1160 (100%)

(54.7 percent) of the articles was associated with either a university LIS program or LIS practice, a trend that was consistent for authors writing in all three major discipline areas.

Science scholars made up 21 percent of the sample, social science scholars 10.3 percent, and humanities scholars 1.2 percent. Interestingly, while scientists were more likely to write about topics related to science (85.2 percent or 208 of the 244 articles by individuals associated with science programs in universities), humanists authored more articles about science (56.7 percent or 8 of 14 articles) and just as many about social science topics (21.4 percent or 3 of 14 articles) as they did about the humanities (21.4 percent or 3 of 14 articles). Social scientists wrote more about science (56.7 percent or 68 of 120 articles by first authors affiliated with the social sciences) and less about the humanities (11.6 percent or 14 of 120 articles) compared to the social sciences (31.7 percent or 38 of 120 articles). Clearly, scholars affiliated with non-LIS workplaces, but publishing in LIS venues, do not hesitate to cross broad disciplinary boundaries in their research. Finally, authors associated with private sector and government organizations were also evident in the sample, producing work associated with all three broad disciplines.

Reports of empirical research were the most frequently occurring type of article (see Table 3), accounting for 59.3 percent of the total, followed by descriptive papers (14.3 percent) and papers using verbal argumentation (7.3 percent).

While this pattern held for articles dealing with the social sciences and sciences, it was somewhat different for those falling within the humanities. Historical treatises were the most frequent type of article for the humanities (27.0 percent), followed by reports of empirical research (23.0 percent) and papers using verbal argumentation (22.1 percent). Each of the three disciplinary areas had other article types that were relatively more represented within their subset of articles: Method (9.0 percent) and theory (9.8

Table 3. Type of Article by Broad Disciplinary Content (*n* = Number of Articles).

Type of Article	Discipline			
	Humanities	Social Sciences	Sciences	Total
Descriptive	6 (4.9%)	56 (16.1%)	104 (15.1%)	166 (14.3%)
Discourse Analysis	1 (0.8%)	3 (0.9%)	0 (0%)	4 (0.3%)
Empirical Research	28 (23%)	216 (62%)	444 (64.3%)	688 (59.3%)
Historical	33 (27%)	9 (2.6%)	10 (1.5%)	52 (4.5%)
Math Modeling	2 (1.7%)	0 (0%)	51 (7.4%)	53 (4.6%)
Verbal Argument	27 (22.1%)	31 (8.9%)	27 (3.9%)	85 (7.3%)
Literature Review	2 (1.7%)	8 (2.3%)	27 (3.9%)	37 (3.2%)
Method	11 (9.0%)	10 (2.9%)	13 (1.9%)	34 (2.9%)
Theory	12 (9.8%)	14 (4%)	12 (1.7%)	38 (3.3%)
Other	0 (0%)	1 (0.3%)	2 (0.3%)	3 (0.3%)
Total	122 (10.5%)	348 (30%)	690 (59.5%)	1160 (100%)

percent) papers in the humanities; theory papers in the social sciences; and mathematical modeling/algorithm development papers in the sciences. This suggests that different approaches to research are, to some extent, associated with the broad disciplinary subdivisions of LIS research.

Theory Deployment

Overall, 34.2 percent (*n* = 397) of articles incorporated theory (Table 4) in the title, abstract, and/or text, resulting in a total of 1,083 incidents of theory use or an average of .93 theory incidents per article. When one considers only the articles including theory, the average number of theory incidents per article increases to 2.73.

Distinct disciplinary differences in theory use are evident in the data. Humanities articles had the highest levels of theory use with 1.81 incidents per article and 4.09 incidents per article with theory. Theory use in social science articles approximated the averages for the entire sample, using .98

Table 4. Theory Use by Broad Disciplinary Content (*n* = Number of Articles).

Theory Use	Discipline			
	Humanities	Social Sciences	Sciences	Total
Number of Articles	122 (10.5%)	348 (30%)	690 (59.5%)	1160 (100%)
Number of Theories	221 (20.4%)	342 (31.6%)	520 (48%)	1083 (100%)
Number of Theories per Article	1.81	.98	.75	.93
Number of Articles with Theory	54 (44.3%)	119 (34.2%)	224 (32.5%)	397 (34.2%)
Number of Theories per Article with Theory	4.09	2.87	2.32	2.73

incidents of theory per article for all social science articles and 2.87 incidents per social science article using theory. The incidence of theory use was lower than average for science articles at .75 incidents per article for all science articles and 2.32 incidents for those containing theory.

Theories used (Table 5) were drawn first from the social sciences (45.4 percent), followed by LIS (29.9 percent), the sciences (19.3 percent), and the humanities (5.4 percent).

Articles dealing with the social sciences relied most heavily on theories drawn from the social sciences (69.9 percent) and LIS (22.5 percent) but less so on those from the sciences (6.4 percent) and humanities (1.2 percent). Science papers turned first to theories from LIS (41.4 percent) and then almost equally to theories from the sciences (29.6 percent) and social sciences (24.8 percent). Papers dealing with the humanities relied more on theories drawn from the social sciences (56.1 percent) and just as much on science (14.9 percent) and LIS theories (14.5 percent) as they did on theories from the humanities (14.5 percent). While only articles with content from one of the three broad disciplines—social sciences—relied most heavily on theories from the same broad discipline, when one examines the data from the perspective of the discipline of the theory used, a positive relationship exists between the discipline of the theory and the disciplinary content of the article. For example, humanistic theories are most often found in papers dealing with the humanities and science theories in articles dealing with the sciences. Authors proposed eighty-six new theories, distributed proportionately according to the total number of articles in each discipline between articles about the humanities ($n = 8$; 9.3 percent), the social sciences ($n = 26$; 30.0 percent), and the sciences ($n = 52$; 60.1 percent). Overall, the findings suggest that there are some discipline dependent differences associated with the use of theory in LIS research.

As shown in Tables 6 and 7, citation practices did not differ substantially among articles in the three disciplines.

Theories were mentioned in article titles about 10 percent of the time, in abstracts about 20 percent of the time, and almost always in the text of articles. Authors provided bibliographic references for approximately 85

Table 5. Sources of Theory by Broad Disciplinary Subject (n = Number of Theories Cited).

Sources of Theory	Discipline			Overall
	Humanities	Social Sciences	Sciences	
LIS	32 (14.5%)	77 (22.5%)	215 (41.4%)	324 (29.9%)
Humanities	32 (14.5%)	4 (1.2%)	22 (4.2%)	58 (5.4%)
Social Sciences	124 (56.1%)	239 (69.9%)	129 (24.8%)	492 (45.4%)
Sciences	33 (14.9%)	22 (6.4%)	154 (29.6%)	209 (19.3%)
Total	221 (100%)	342 (100%)	520 (100%)	1083 (100%)

Table 6. Where Theory Mentioned by Broad Disciplinary Subject (n = Number of Theories Mentioned).

Where Mentioned	Discipline			
	Humanities	Social Sciences	Sciences	Overall
Title	9 (4.1%)	44 (12.9%)	49 (9.4%)	102 (9.4%)
Abstract	43 (19.5%)	77 (22.5%)	96 (18.5%)	216 (19.9%)
Text	219 (99.1%)	341 (99.7%)	514 (98.8%)	1074 (99.2%)
Total	221	342	520	1083

Table 7. Number of Theories Mentioned with and without Reference Citations by Broad Disciplinary Subject. (n = Number of Theories Mentioned).

Theories	Discipline			
	Humanities	Social Sciences	Sciences	Overall
With Reference Citations	184 (83.3%)	298 (87.1%)	450 (86.5%)	932 (86.1%)
Without Reference Citations	37 (16.7%)	44 (12.9%)	70 (13.5%)	151 (13.9%)
Total	221 (100%)	342 (100%)	520 (100%)	1083 (100%)

percent of theories mentioned. Surprisingly, a few authors only included a theory in either the title or abstract without mentioning it in the text. While it is encouraging that references were provided for the majority of the theories, often these were citations to secondary sources rather than primary works associated with a theory. Differences in theory citation practices appear to be associated with individual authors rather than the disciplinary content of the work.

DISCUSSION AND CONCLUSION

The findings suggest that differences exist in the use of theory in LIS that are associated with the broad disciplinary content of the research. Scholars publishing humanistic research within the six LIS journals analyzed for this study used theory in their articles almost twice as frequently as those working in the social sciences, and almost two and one half times more often than those publishing in the sciences. It is hypothesized that these findings arise from differing conceptions of and approaches to the use of theory associated with the traditions of humanities, social science, and science research. It may be, for example, that the lower rate of theory use in articles dealing with science-related topics reflects a disciplinary reliance on theories that are assumed to be commonly understood by the scholarly community active in the research area and, therefore, not in need of identification and explanation. More research is needed to explore this idea

further. For example, interviews with authors working in the three broad areas could uncover "hidden" aspects of theory use in research that may not always be evident in the articles arising from that research.

Reports of earlier stages of this project (McKechnie & Pettigrew, 1998; McKechnie, Pettigrew, & Joyce, 2001; Pettigrew & McKechnie, 2001) found that, with the exception of articles written by LIS scholars publishing outside of LIS, LIS theories are not being cited in non-LIS journals. A surprising finding of this analysis is that many non-LIS scholars are publishing within the LIS journals examined, especially scholars associated with academic science departments, such as computer science, engineering, and mathematics. Although it was disappointing to see that LIS theories had not made substantial inroads in other disciplines, it is interesting to think of the opportunities afforded by exposure to non-LIS theories brought into LIS publishing by scholars working outside of the discipline.

LIS, with its broad cognitive domain and faculty recruited from diverse backgrounds, is often regarded as an inter-disciplinary orthogonal field (Bates, 1999). Some, such as Patrick Wilson in "Interdisciplinary Research and Information Overload" (1996), identify the challenges implicit in the need to master more than one area in order to conduct valid interdisciplinary work. Many others, including Machlup & Mansfield (1983), Harmon (1987), and Grover & Greer (1991) have advocated more interdisciplinary work as a potentially rich venue for answering the field's complex research questions. Tom Wilson (1997), in a review of non-LIS literature dealing with information behaviour, states that "the ideas presented throughout this review demonstrate to the information science researcher that exploration of other disciplines can be productive of research ideas . . . [including] analytical concepts, models and theories" (pp. 569-570). The large number of distinct theories from widely diverse disciplines discovered in this project, and the large number of new theories proposed in the articles, suggest that interdisciplinary work may indeed be enriching LIS in terms of the use and development of theory. However, if interdisciplinarity continues to be important within LIS, special attention must be paid to the problems it poses for theory deployment and development within the field. One simple solution suggested by the findings of this study would be to encourage scholars publishing within LIS to adopt better citation practices when writing about theory. Theories should be clearly identified and authors should list one or more primary sources for a theory. Theory names should be included in article abstracts so that individuals interested in learning about a theory and how it has been used can easily retrieve relevant research articles by searching LIS databases like Library and Information Science Abstracts. Authors could also provide brief explanations of theories and how they have been used within the text of the article itself. These practices would be helpful for LIS scholars with little or no knowledge of a particular theory. The widely diverse disciplinary affiliations of first authors

publishing within LIS, evident in this study, indicates that the multidisciplinary expertise needed to increase and improve the use of theory from other disciplines and to aid in the development of new theory unique to LIS is already available in the community of scholars, a rich and under-utilized treasure.

APPENDIX: CONTENT ANALYSIS CODE BOOK

Note: "Affiliation of the first author" was coded using information provided within the article itself or in another part of the journal issue, such as an "About Our Contributors" section. "Type of Article" codes were developed to answer the question "What kind of article is this? Or "What approach to writing is used in this article?" Subject codes describe the main content areas of LIS. When an article covered two or more subject areas, the principal subject (i.e., that receiving the most coverage) was coded. Articles that dealt with LIS in general or LIS research were included in the "General LIS" category. Subjects were further grouped under the broad disciplinary headings of humanities, social sciences, and sciences.

- Affiliation of first author
 - Private sector
 - Government
 - LIS university/practice
 - Humanities university
 - Sciences university
 - Social sciences university
 - Unknown
- Type of article
 - Report of empirical research
 - Descriptive paper
 - Verbal argumentation
 - Mathematical modeling/algorithm development
 - Discourse analysis
 - Historical paper
 - Literature review
 - Theory paper
 - Method paper
 - Other
- Primary subject of article
 - Humanities
 - General LIS
 - History
 - Information policy
 - Social sciences
 - LIS education and pedagogy

Human information behavior
 Library services (design and delivery of services and programs)
 Management (human resources, fiscal, planning)
 Scholarly communication and publishing
 Sciences
 Bibliometrics
 HCI/interface design
 Indexing/abstracting/cataloguing and classification
 Information retrieval
 Information technology (including www., cd-rom, .gis, systems)

REFERENCES

- Babbie, E. (1992). *The practice of social research*, 6th ed. Belmont, CA: Wadsworth.
- Bates, M. J. (1999). The invisible substrate of information science. *Journal of the American Society for Information Science*, 50(12), 1043–1050.
- Chatman, E. A. (1996). The impoverished life-world of outsiders. *Journal of the American Society for Information Science*, 47(3), 193–206.
- Feehan, P. E.; Gragg, W. L.; Haverner, W. M.; & Kester, D. D. (1987). Library and information science research: An analysis of the 1984 journal literature. *Library and Information Science Research*, 9(3), 173–185.
- Grover, R., & Glazier, J. (1986). A conceptual framework for theory building in library and information science. *Library and Information Science Research*, 8(3), 227–242.
- Grover, R., & Greer, R. C. (1991). The cross-disciplinary imperative of LIS research. In C. R. McClure & P. Herson (Eds.), *Library and information science research: Perspectives and strategies for improvements* (pp. 101–113). Norwood, NJ: Ablex.
- Harmon, E. G. (1987). The interdisciplinary study of information: A review essay. *The Journal of Library History, Philosophy and Comparative Librarianship*, 22, 206–227.
- Hauser, L. (1988). A conceptual analysis of information science. *Library and Information Science Research*, 10(1), 3–34.
- Hjørland, B. (1998). Theory and metatheory of information science: A new interpretation. *Journal of Documentation*, 54(5), 606–621.
- Jarvelin, K., & Vakkari, P. (1990). Content analysis of research articles in library and information science. *Library and Information Science Research*, 12(4), 395–421.
- Julien, H. (1996). A content analysis of the recent information needs and uses literature. *Library and Information Science Research*, 18(1), 53–65.
- Julien, H., & Duggan, L. J. (2000). A longitudinal analysis of the information needs and uses literature. *Library and Information Science Research*, 22(3), 291–309.
- Machlup, F., & Mansfield, U. (Eds.) (1983). *The study of information: Interdisciplinary messages*. New York: Wiley.
- McKechnie, L., & Pettigrew, K. E. (1998). Theories for the new millennium: The deployment of theory in LIS research. In E. G. Toms, D. G. Campbell, & J. Dunn (Eds.), *Information science at the dawn of the next millennium* (pp. 125–142). (Papers presented at the 26th Annual Conference of the Canadian Association for Information Science, 3–5 June 1998, Ottawa, Ontario.) Toronto: Canadian Association for Information Science.
- McKechnie, L.; Pettigrew, K. E.; & Joyce, S. L. (2001). The origins and contextual use of theory in human information behavior research. *New Review of Information Behaviour Research: Studies of Information Seeking in Context*, 2, 47–63.
- Nour, M. M. (1985). A quantitative analysis of the research articles published in core library journals of 1980. *Library and Information Science Research*, 7(3), 261–273.
- Peritz, B. C. (1980). The methods of library science research: Some results from a bibliometric survey. *Library Research*, 2(3), 251–268.
- Pettigrew, K. E., & McKechnie, L. (2001). The use of theory in information science research. *Journal of the American Society for Information Science and Technology*, 52(1), 62–73.

- Silverman, D. (1993). *Interpreting qualitative data: Methods for analysing talk, text and interaction*. London: Sage.
- Templeton, M. (1994). Letter to the Editor. *Journal of the American Society for Information Science*, 45(8), 567.
- Vogt, W. P. (1993). *Dictionary of statistics and methodology: A nontechnical guide for the social sciences*. Newbury Park, CA: Sage.
- Wilson, P. (1996). Interdisciplinary research and information overload. *Library Trends*, 45(2), 192-203.
- Wilson, T. D. (1997). Information behaviour: An interdisciplinary perspective. *Information Processing and Management*, 33(4), 551-572.