

Research collaboration of Library and Information Science (LIS) schools' faculty members with LIS and non-LIS advanced degrees: multidisciplinary and interdisciplinary trends

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Abstract

Multidisciplinarity of LIS school's faculty is one of the prominent trends of modern LIS education. 42% of LIS schools' faculty members hold advanced degrees in 34 disciplines other than LIS. The study focuses on multidisciplinary of LIS as a field of study and compares disciplinary characteristics of publishing and citation patterns of faculty members with LIS and non-LIS doctorates. Disciplinary affiliations of the works of faculty members of top ten LIS schools published since 1995 and indexed in the Web of Knowledge before September 2006 and those works citing them have been analysed. Disciplinary affiliations of all co-authors have been established. The results show that LIS scholars maintain connections with a wide variety of disciplines. Scholars from many other fields of study cite their publications. LIS schools' faculty members collaborate not only with their colleagues from LIS but with researchers and practitioners from a number of other fields. Faculty members with non-LIS doctorates show a higher degree of interdisciplinarity in their publishing and citation patterns and, thus, may be the group responsible for the further development of LIS as a truly interdisciplinary knowledge domain.

Keywords: Collaboration, Interdisciplinarity, Multidisciplinarity, LIS education, LIS faculty members.

Resumen

La multidisciplinaria del profesorado de las escuelas/facultades de Ciencia de la Información (LIS) es una tendencia dominante en la educación moderna en LIS. El 42% del profesorado que imparte docencia en estos estudios posee una titulación superior en 34 disciplinas diferentes aparte de la Ciencia de la Información. El estudio se centra en la multidisciplinaria de LIS como campo de estudio y compara las características

disciplinarios del modelo de publicación y de citación de los académicos con doctorados en LIS con respecto a los doctores en otros campos. Se han analizado las afiliaciones disciplinarias de los trabajos de los profesores de las diez principales universidades en las que se imparte la titulación, publicados desde 1995 e indizados en el Web of Knowledge antes de septiembre de 2006, al igual que aquellos trabajos que los citan. Se han establecido las afiliaciones disciplinarias de todos los coautores. Los resultados muestran que los académicos de LIS mantienen conexiones con un amplio espectro de disciplinas. Investigadores procedentes de muchos otros campos de estudio citan sus publicaciones. Los profesores de LIS colaboran no sólo con sus colegas de área de conocimiento sino con investigadores y profesionales de otras áreas. Los académicos sin doctorado en LIS muestran un mayor grado de interdisciplinariedad en sus patrones de publicación y citación y, por tanto, pueden constituirse en el grupo responsable de promover el desarrollo de LIS como un dominio del conocimiento realmente interdisciplinar.

Palabras clave: Colaboración, Formación en Ciencia de la Información, Interdisciplinariedad, Multidisciplinariedad, Profesores de Biblioteconomía y Documentación.

1 Multidisciplinarity of Library and Information Science education

Many researchers emphasize the great importance of multidisciplinary and interdisciplinarity for modern science in terms of re-grouping the disciplines on their way to holistic science. Multidisciplinary research networks can be organized in a variety of ways. The possibilities range from “invisible colleges” to all sorts of social networks distributed in space and time (Haythornthwaite, 2006) and multidisciplinary departments. The latter trend has become visible in Library and Information Science (LIS) schools lately.

KALIPER Report¹ named multidisciplinary of LIS school’s faculty one of the most prominent trends of modern LIS education. According to Association for Library and Information Science Educators (ALISE) 2003 annual report², 42% of LIS schools’ faculty members hold advanced degrees in 34 disciplines other than LIS. The numbers suggest that the migration to LIS from other fields cannot be accidental. There have to be some epistemological connections, some cognitive commonalities between LIS and other disciplines that foster the field to welcome scholars from other knowledge domains.

LIS flourished with the rise of new computer technologies. Information science, being one of the youngest among the disciplines, is growing rapidly and actively penetrating into other fields of study. It is closely interconnected with computer science, education, sociology, cognitive psychology, mathematics, philosophy, and engineering. New information technologies brought into LIS schools such topics as human-computer interaction, computer-mediated communications, information literacy, and social informatics, which further brought into play several other disciplines.

¹ KALIPER Project: Final report [special issue]. *Journal of Education for Library and Information Science*, 2001, vol. 42, n. 3, 170-247.

² ALISE statistical report, 2003 [electronic resource] < <http://ils.unc.edu/ALISE/2003/Faculty/Faculty01.htm>> [Consulted: 7 jun. 2006]

The issue of the relationships of information science with other disciplines has always been a very interesting and difficult one (Dillon and Norris, 2005). The centrality of the concept of information in modern society makes it very difficult to draw the lines between different disciplines. Information is an extremely complex notion. It penetrates all knowledge domains to some extent so the scholars who follow this notion in pursuit of their research ideas might occasionally travel from one knowledge domain to another without noticing it. One might assume that this universality of information as a research object is one of the reasons that many scholars with non-LIS doctorates show interest to LIS publications and, moreover, migrate to LIS schools.

The process of migration of faculty members to LIS from other disciplines is based on two initiatives. First, the field itself seems to be interested in incorporating knowledge from other disciplines. Its “importing” ability has been well noticed (Cronin and Pearson, 1990). Second, the complex and broad field appeals to scholars with a wide variety of disciplinary backgrounds. They come to the LIS field with different methodological approaches and different theoretical frameworks. Bringing the interpretation of the notion of information from their disciplines, they might make a really interdisciplinary approach to this complex notion possible within one type of educational unit, i.e. LIS schools; but their role in LIS research and education is not yet clear, which provokes multiple discussions.

2 Research questions

The study focuses on two questions. First, is multidisciplinary of LIS schools’ faculty members accidental and is caused by migrated faculty members’ individual circumstances. Or does its research agenda really appeal to researchers from a wide variety of disciplines? It is known LIS’ “importing” capabilities used to prevail over its “exporting” ones (Cronin and Pearson, 1990). Active migration of researchers from a variety of disciplines to LIS schools might indicate the change in “import-export” ratio. Analysis of citations to the works published by LIS faculty members (both with LIS and non-LIS advanced degrees) allows to identify disciplines expressing interest in LIS research through citing publications by LIS scholars.

While the first question focuses on “passive” connections between LIS and other disciplines (citations), the second one focuses on the “active” ones, i.e., research collaboration between scholars from LIS and other disciplines as revealed in their co-publishing patterns. This degree of collaboration is measured by number of LIS schools’ faculty members’ co-authors from institutions affiliated with other disciplines.

3 Methodology

The study employs citation analysis as its primary method. The Web of Knowledge by Thomson Scientific was the main source of data collection. The data has been collected in August 2006, information of LIS schools’ faculty members’ advanced degrees was validated in December 2006. The following sections describe the method of citation analysis, focusing on its applicability for this study, the Web of Knowledge as a data source, and the study’s scope and time line.

3.1 Method of citation analysis – brief history and applicability

Citation analysis has been widely used by those interested in scholarly communications or sciences mapping for a long time. It proved to be the most appropriate method for tracing relationships between disciplines and connections within them (Garfield, 1963; McCain, 1991). Citation and co-citation analysis are two methods that are often used when a question about possible links between disciplines or sub-disciplines arises (Noyons, 2001; White, 2003). Tracing citations from one discipline to another allows one to identify “exporting-importing” qualities of disciplines.

Of course, citation flows cannot be used as the only indicator of changes in relationships between disciplines. Bollen and Van De Sompel point out that publications are not the only source for evaluation processes in science development (Bollen and Van De Sompel, 2006); but, nevertheless, publishing is the most prominent and significant activity of any scholar that represents his/her research and allows evaluation of his/her position in a research institution and his/her field of study in general, and, thus, bibliometric analysis is one of the most significant means of scientometrics. Merton notes that “from a sociological perspective, citations, as the most routinized form of peer recognition, are a variously consequential element in the reward system of the social institution of science and scholarship” (Merton, 2000, p. 438). “A basic assumption ... is that a subject literature reflects the contents of a field and that its citation patterns can serve as a source of data for identifying interdisciplinary relationships” (Smith, 1992, 255). Simple citation counts, as Smith points out, cannot be satisfactory because they might provide researchers studying interdisciplinary linkages with misleading data. She recommends as an alternative “analyzing citations from other disciplines to the literature of library and information science” (Smith, 1992, p. 255).

Objectivity is another important characteristic of citation analysis as a research method. As Aaronson pointed out, “Citation analysis is objective because it is based on written information that anyone can check” (Wouters, 1999, p. 6). Being unobtrusive (Smith, 1981), the method offers an opportunity to get an objective survey of a disciplinary landscape.

3.2 The Web of Knowledge as a data source

The Thomson ISI Web of Knowledge has been the source for citation data. This section provides a brief history of this unique database and a rationale for using it for tracing connections between LIS and other fields.

The Science Citation Index was proposed in 1955 by Eugene Garfield. Even a print version of the Science Citation Index was extremely useful means of mapping sciences. Its significance increased when the online version, developed in late 1960s by the ISI directed by Garfield, became available. For years, it existed as a set of three databases, the Science Citation Index, the Social Sciences Citation Index, and the Arts & Humanities Citation Index and this separation between groups of disciplines set some unfortunate limits for those who would be interested in tracing interdisciplinary connections across three knowledge domains using citation analysis. This drawback has been overcome when the Institute for Scientific Information produced the Web of Knowledge, which combines the three preexisting indexes. This enhancement allows users of the Index not only to search across disciplines but to study scholarly communications across all disciplinary domains as well.

3.3 The scope of the study and its time line

Data on publications by 10 leading LIS school’s faculty members indexed in the Web of Knowledge from 1995 to August 2006 have been collected (1342 publications total).

Schools of the following universities have been studied: Florida State University, Indiana University, University of Illinois, University of Michigan, University of North Carolina–Chapel Hill, University of Pittsburgh, Rutgers University, Syracuse University, University of Texas-Austin, and University of Washington.

3.4 Data collection and processing

For every work, published by LIS schools' faculty members since 1995 and indexed in the Web of Knowledge before or in August 2006, disciplinary categories, assigned to the work in the Web of Knowledge have been collected along with the disciplinary categories assigned to the articles that cited them. All the categories were stored in Excel database and counted. Only works of every faculty member as a first author have been counted in order to avoid redundancy. Information on 1,342 publications has been collected.

Works published with co-authors have been counted and analyzed. The disciplinary affiliations of all the co-authors were identified based on authors' institutional characteristics, provided by the Web of Knowledge, information retrieved from the authors' institutional and personal web sites and the publications.

4 Results and discussion

(1). Number of disciplinary categories assigned in the Web of knowledge to works of LIS schools' faculty members published since 1995 and disciplinary categories assigned to the publications citing those works were counted. Total number of categories in the first group (published works) was 74 while total number of categories in the second group (citing works) was 146. The ratio (1:2) indicates an interest to LIS publications from a wide variety of disciplines which might reflect some epistemological connections between LIS and other disciplines.

The distribution of categories from both groups by schools is shown in Fig.1. The schools differ in size, number of faculty members and diversity of disciplinary background of the latter. Nevertheless, in all cases categories of citing works outnumber those of published one.

These results might lead to a conclusion that there must be epistemological or/and social grounds for forming connections through citation between LIS and other fields. It is not possible to speculate on the nature of those grounds based on a limited sample but the fact remains that modern LIS is a field that actively “communicates” with other knowledge domains, not only “importing” ideas and methodologies, but, apparently, offering something that is of interest to other fields.

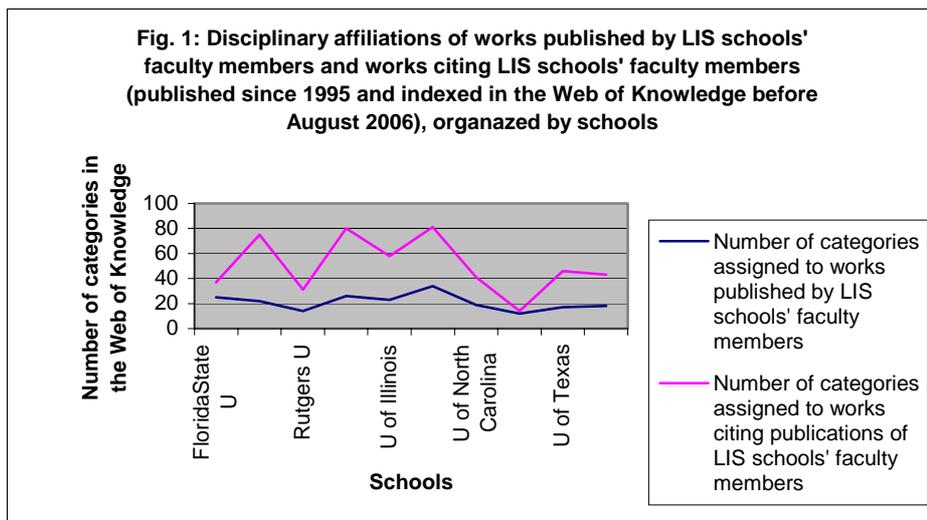


Table 1. Disciplinary affiliations of works published by LIS schools' faculty members and works citing LIS schools' faculty members (indexed in the Web of Knowledge, 1995-2005)

Disciplinary categories	Articles published by LIS schools' faculty members...				Articles citing works published by LIS schools' faculty members...			
	...with LIS doctorate		...with non-LIS doctorate		...with LIS doctorate		...with non-LIS doctorate	
	Total	%	Total	%	Total	%	Total	%
Information science & Library science	715	55	223	28.4	1803	42	398	17
Computer science	21	16	244	31	1716	40	709	30
Psychology	8	0.6	31	4	95	2	257	11
Education	21	1.6	32	4	78	1.8	77	3
Medicine & Health services	14	1	21	2.7	90	2	44	1.9
Management & Business	6	0.5	12	1.5	60	1.4	73	3
Ergonomics	4	0.3	5	0.6	52	1.2	41	1.8
Engineering	3	0.25	8	1.0	50	1.2	57	2.4

(2). Distributions of disciplinary categories of published works and the ones citing them in the group of faculty members with and without LIS doctorate are shown in Table 1. (only selected disciplines are presented). The results are quite interesting. They show that while main focus of the faculty members with LIS doctorate stays within the field (55% of all categories assigned to published works) the focus of the faculty with non-LIS doctorate is divided equally between LIS and computer science (28.4 % and 31% respectively). When it comes to citing works, the situation changes. The numbers show that the main focus moves towards computer science. Ratio between the categories of Information Science & Library Science and Computer Science changes from 55:16 to 43:40 in the group of faculty with LIS doctorate and from 28:31 to 17:30 in the group of faculty with non-LIS doctorate. Other “visible” disciplines are Psychology, Education, Medicine and Health services (combined in the table in one group), Management and Business, Ergonomics, and Engineering. The reasons for the visibility of these disciplines is an interesting topic but it is beyond the scope of this study.

5 Conclusions

The results of the study show that, first of all, the modern LIS is an open field. Its scholars' research interests go far beyond traditional LIS topics. They publish in disciplines other than LIS and their publications are cited by researchers and practitioners from a wide variety of disciplines. Citation patterns suggest that the "exporting" ability of LIS as a discipline is quite high.

LIS scholars collaborate and publish with researchers and practitioners from other fields though the bulk of co-publications of LIS schools' faculty members with LIS doctorate stays mostly within the field of LIS. This fact draws a particular attention to the group of LIS faculty with non-LIS doctorates. Their research collaborations are more multidisciplinary than those of faculty with LIS doctorate and most of them seem to keep connections with researchers from the disciplines of their advanced degrees. At the same time, they seem to be well established as researchers in their new field, the field of LIS. This combination of successful "naturalization" in LIS and maintaining connections with their original domain may facilitate further evolving of LIS as a truly interdisciplinary field.

The data, analysed in this study, is limited by number of schools (10 out of 54) and the period of time when the works being analysed were published (from 1995 to summer 2006). Nevertheless, top ten schools might represent most important trends in LIS education quite adequately. The period of time chosen for the study allows one to see the trends in the LIS research since new computer technologies started to proliferate the field transforming its scope and enhancing its methodology. This study is a fragment of a larger project which covers all ALA accredited North American schools and will allow to make more comprehensive and better grounded conclusion when finished.

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