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Academic Librarian Competency: A Description of Trends in the Peer-Reviewed Journal Literature of 2001-2005

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Abstract

Describes publishing trends in academic librarian competency articles to provide context for a later investigation of definitions found in this library and information science (LIS) literature. Explores peer-reviewed articles from 2001 – 2005 to determine: who is writing on academic librarian competency, including any collaboration; whether there are areas of focus in the literature; if these articles are published in academic journals and to what degree; whether we incorporate other literatures, especially those relevant to competency; and what other trends may be important to an understanding of this topic.

Discovers three major areas of focus: management-related with 35 articles, 19 education and professional development articles and 12 articles on professional issues. Most are written by single authors and by authors associated with academic libraries or library schools. There are only three college-based articles. There is minimal collaboration across boundaries of any kind. Most of the authors associated with academic libraries are writing the management-related articles. The majority of these authors are US-based. The majority of articles on education and continuing professional development are written by authors at library schools. Furthermore, these authors represent a more international representation of this topic and a greater degree of international collaboration than found in the management articles. The authors who wrote articles on professional issues are almost equally split between library schools and libraries. The majority of citations of peer-reviewed literature (53%) were to journals with no LIS subject heading in Ulrich's, illustrating that authors are incorporating literatures from outside LIS.

Keywords: academic librarians, college librarians, universities, librarians, librarianship, competencies, publishing

Purpose of the Study

Published, peer-reviewed articles on academic librarian competency are analyzed to describe qualities of the literature that may inform our understanding of definitions used in this literature. It is also a response to LeDeist and Winterton's call to "…extend the depth of analysis, investigating competence in greater detail in specific occupations, since it is at this level that competence has [its] most concrete meaning" (41). The information gained through analyzing publishing trends will allow us to determine the focus of areas of conversation and who is writing on the topic, where it is being published, and allow us to challenge assumptions. Furthermore[]**,** this allows us to address the question of whether we do access other literatures to support our work in LIS, and the presence of peer-reviewed references from the articles may be viewed as a potential expression of librarian competency.

Introduction

Competencies, developed in the USA out of the field of behavioural psychology, describe requirements for positions in an attempt to improve human performance (Rothwell and Lindholm 91). In the human resources and business contexts they are used for evaluation and to determine education and training requirements, usually for managers. According to Johnson and Winterton (7) there is "considerable confusion and debate" around this concept, including debate regarding "personal models, outcome models or education and training models, as well as to the standards approach in which benchmarking criteria are used."

Competency essentially reframes work by deconstructing positions or jobs and rephrasing their content as components or values, most commonly as knowledge, skills and attributes or behaviours, with an eye to those that determine success. These values are then combined in a variety of ways that may or may not be explicitly defined by authors for a multitude of purposes.

It is important to discover how competency is defined and whether there is a common definition used by LIS authors because of the demand for increased accountability in libraries (Stoffle et al 364) and because of the growing use of the concept in job descriptions, in benchmarking and as guidelines when evaluating librarians. *Core Competencies: A SPEC Kit* (McNeil 13, 15-16) is an example of the concept's use in LIS. Defining the use of competency is also important because of the incursion of non-traditional positions in libraries such as digital services librarian, data librarians, electronic resources librarians, etc. that may not be successfully defined within the traditional position description framework.

There are many examples of competency statements in the LIS literature that by their existence imply guidelines for, or definitions of, librarian competency. For example, the Special Libraries Association's (SLA) *Competencies for Special*

Librarians and their revised *Competencies for Information Professionals of the 21st Century*, the Young Adult Library Services Association's *Competencies for Librarians Serving Young Adults*, and the Association of Southeastern Research Libraries' *Shaping the future: ASERL's competencies for research librarians*. Other studies, such as the Canadian Library Association sponsored study titled *The Future of Human Resources in Canadian Libraries* also known as the 8Rs study, do not provide definitions of competency even though they discuss competency in their text.

The attempt to use competency as a means for assessment in libraries is being driven by a number of factors:

- The speed at which our context or environment changes and our need to understand and monitor our changing roles;
- The reality that our profession "has many competent and thoughtful people…who are deeply disturbed by the disparity between what they believe constitutes professional practice and what most librarians now do" (Bundy and Wasserman 7) and the continuing, perceived gap;
- The need to clarify common organizational goals;
- The requirements for renewal, promotion and permanence (tenure) and the question of the need to modify professorial tenure requirements to reflect the library context;
- The need to identify gaps in training and staffing;
- The need to account for the library's use of resources;
- The emergence of roles new to the profession such as metadata librarian, data librarian, digital resources librarian and what they entail or require in terms of knowledge, skills and experience;
- To provide input in the hiring process, whether for managerial or non-managerial positions.

The LIS journal literature was chosen as the place to start investigating, since it parallels an identified arena of competency debate in the business literature.[1] The first task is to determine if discussion is occurring and where LIS authors are focusing their efforts. This will allow the creation of a foundation for a second article on how we are using competency. We need to know who is writing on competency along with their work-related affiliations. Are academic librarians or public librarians writing on academic librarian competency? What kind of collaboration is occurring that may have a later effect on definitions?

Other assumptions to be challenged include: there will be more library school authors than library-affiliated authors and collaborations between and among them will be common; more articles, but not a huge majority, will be written by

[1] Examples include LeDeist and Winterton (2005), Finch-Lees et al (2005), Baruch (2003), Alvesson and Willmott (2002), Johnson and Winterton (1999), and Rothwell and Lindholm (1999).

North American authors than any other authors; there will be significant English-language international representation of authors; LIS articles will be management-related because this is the focus of the business literature; that articles will be published in academic journals; that all peer-reviewed articles will have peer-reviewed citations; that authors will heavily cite peer-reviewed articles as opposed to non-peer literature; and that LIS authors will cite literature external to the LIS literature.

Initial exploration of the LIS competency literature reinforced a need to frame the contexts within which discussion occurs to define any foci. In their 2002 article, Crumley and Koufogiannakis develop a framework and process for the activity of LIS research (specifically Evidence-Based Librarianship or EBL) expressed as six domains or subjects within which all formulated research questions regarding librarianship may be placed (63). The award-winning article written by Koufogiannakis, Slater and Crumley[2] tests the subjects or domains against the LIS research literature published in 2001 (227) resulting in an updated list of domains with definitions added (233), as seen in Table 1 below. These are applied to organize the papers into subject areas to see if there are any areas of focus, and to see what relationships may be discovered.

Table 1
Librarianship Domains

Librarianship Domains	Definition
Collections	Building a high-quality collection of print and electronic materials that is useful, cost-effective and meets the users' needs.
Education - LIS Education [subset]	Incorporating teaching methods and strategies to educate users about library resources and how to improve research skills. - Specifically pertaining to the professional education of librarians
Information Access & Retrieval	Creating better systems and methods for information retrieval and access.
Management	Managing people and resources within an organization. This includes marketing and promotion as well as human resources.
Professional Issues	Exploring issues that affect librarianship as a profession.
Reference/Enquiries	Providing service and information access that meets the needs of library users.

[2] Koufogiannakis, Denise, Linda Slater, and Ellen Crumley. "A Content Analysis of Librarianship Research." *Journal of Information Science* 30 (June 2004): 227-39 received the 2005 Robert H. Blackburn Distinguished Paper Award given by the Canadian Association of College and University Libraries, a division of the Canadian Library Association. Press Release available online at http://www.cla.ca/divisions/cacul/blackburn2005.htm. [Accessed October 24, 2006].

Source: Koufogiannakis, Denise, Linda Slater, and Ellen Crumley, “A content analysis of librarianship research,” *Journal of Information Science* 30, no. 3 (June 2004): 233.

Methodology

The data used in this paper to describe the literature of academic librarian competency is organized along the following dimensions: the domain assigned per article, as per Koufogiannakis, Slater and Crumley’s definitions and process (227-239); description of authors and author affiliations (workplace and country); the top journals that published the competency articles; the presence of competency articles in the indexes, search results and domains; and any relationships discovered among all these dimensions. I also examine the number of references cited in each article, categorizing these as from either peer-reviewed or non-peer reviewed journals to determine whether the authors incorporate non-LIS literature into the competency articles, especially psychology and business.

The library-related indexes chosen for this study are: LISA (1969-current), LISTA (mid-1960s-current), Library Literature & Information Science Full Text (LIBLIT, 1984-current), along with the indexes ERIC (1966-current) and CINAHL (1982-present). CINAHL is included to investigate the relevance of such a database to the LIS and competency literature and with the recognition that it may include articles on evidence-based librarianship and competency. These databases were chosen based on the Crumley and Koufogiannakis article (68) and Koufogiannakis, Slater and Crumley article (228, 232) articles that reviewed the LIS literature and noted where library information is being indexed.

A set of search terms in the English language was developed to allow for the widest cast of the net in order to retrieve the most comprehensive search results on academic librarian competency. These terms were arrived at by testing them individually and in combination against LISA and LISTA databases to obtain the largest and most accurate sets of citations. The search terms arrived at and the resulting query are “competenc* and librar* and (universit* or colleg* or academic)”.

This query was run against each database as noted in Table 2 and the initial results combined into one set of 676 items. Searches of LISA and LISTA resulted in the largest number of initial results and relevant articles, with LIBLIT having the third highest number of hits. With the search strategy tested against LISTA and LISA this may have biased the results. The LIS databases yielded more hits than the non-LIS databases on the topic of academic librarian competency.

Table 2
Indexes with Search Results

Product	Platform	Search Screen	Field	Initial Results	Relevant Search Results
CINAHL	OVID	Advanced	Keyword	55	10
ERIC	CSA	Advanced	Keyword	56	5
LIBLIT	WilsonWeb	Advanced	Keyword	85	25
LISA	CSA	Advanced	Keyword	213	38
LISTA	EBSCO	Advanced	Keyword	267	51

The raw count of 676 hits included non-English language materials, non-peer reviewed journals, duplicate citations and items such as editorials, book reviews, conference reports and anonymously written articles, all of which were removed. The goal was to retain only English language, peer-reviewed articles and to reflect publishing for full years. Citations for 2006 were removed as these represented an incomplete year at the time each query was run. Peer-reviewed journals were determined based on information available through Ulrich's web-based Periodicals Directory. The peer-reviewed, refereed status of journals is identified by the publishers of these journals to Ulrich's[3]. Only three journals required independent verification of peer-reviewed status and this was done by searching the publisher or journal websites for their process.

The decision to use peer-reviewed articles reflects the search for a peer-reviewed debate. A common demand of librarians practicing their profession in academia is to write peer-reviewed articles, thus producing the most rigorous possible paper. The claim is that the best data or information available is represented in peer-reviewed articles. Also, librarians at some universities are considered faculty and are held to the same publishing standards as faculty, also explaining the emphasis on peer-reviewed articles and indirectly, on competency of librarians.

The 362 articles were then organized by year of publication. The years 2001-2005 encompass more than half the total citations (187) with 1968-2000 representing 175 citations. Articles from the more recent years (2001-2005) were chosen for research as they represent a more current discussion of competency. An in-depth review and culling of these articles was done to verify they were peer-reviewed articles and that the discussion in each article applied to librarians in an academic setting. The final total of articles used for analysis was 73.

[3] E-mail response from Ulrich's dated April 11, 2006 responding to my question "who identifies a journal as peer-reviewed for Ulrich's?" Delgado, O'Sheila. "Whose definition of peer-reviewed?" E-mail to the author. 11 April 2006.

In a number of instances the search terms used to locate the articles were not adjacent to each other in each article and the articles did not reflect the concept of academic librarian competency. For instance, many articles discussed information literacy and student competency in an academic setting with no mention of librarian competency, and so were removed. Articles that did not assume librarian competency, and yet did not attempt to comment on or define that competency with respect to the academic setting were also removed.

To determine whether authors incorporate literature from other fields, the citations and notes of the 73 relevant articles were categorized into peer-reviewed and non-peer reviewed journals, with non-journal items excluded. All article citations were recorded and counted for peer-reviewed items. If changes in titles occurred, the count was listed under the most recent title. The status of a cited journal was determined using the same process as for the 73 articles. References to books, conference papers or proceedings, newspapers, web-based standards, guidelines, competencies, reports, plus resources such as AskGoogle.com and association websites were not investigated for this article because of the difficulties of assigning peer or non-peer reviewed status and discipline-related subject headings.

The method above was derived from Williams II and Winston's article (387-402) and the idea was raised in the Koufogiannakis, Slater and Crumley (236) article. The latter authors' intended to pursue citation analysis in future research to "…determine how frequently LIS researchers cite literature outside of their discipline" (236). The former authors' explored ideas regarding research and citation patterns to consider how these patterns reflect analytical abilities and decision-making as aspects of leadership competency and focus on the "use of research methodologies and statistical analysis by academic librarians and administrators (389)" in performing their research. This paper is an opportunity to reflect on the inclusion of non-LIS literatures and on peer versus non-peer reviewed citations as a reflection of competency.

Journal Citation Reports Social Sciences (JCR) was initially investigated for its potential in identifying non-LIS journals in the article citations, and in response to the lure of including impact factors. Unfortunately, few of the cited, peer-reviewed titles had an entry in JCR. Thus Ulrich's subject headings were used to assign journals to subject areas, with more than one subject area per journal in some cases. All assigned subject headings were counted, resulting in more subject areas than journals. Subheadings were ignored as it was the main subject category that reflected the discipline assigned to the title. Entries for peer-reviewed titles were available in the Directory for all except three titles, the *Australian Library Journal*, *Libres* and *Online Journal of Distance Learning Administration*. These titles were assigned the subjects Information and Library Sciences or Education, as per their respective websites, for the purposes of this article.

Results

Assigning the Competency Articles to Domains

Prior to this study, it was assumed the focus of academic librarian competency would be with one domain, the Management domain. Instead the articles are assigned to five of six domains with a majority in the Management domain (35 articles). The LIS Education sub-domain has the second largest number of articles assigned (19) with the Professional Issues domain third at 12 articles. Four domains are less relevant to the topic of academic librarian competency: Education (5), Collections (1), Information Access & Retrieval (1) and Reference/Enquiries (0).

To categorize the articles into subject areas one defines the research question of each article then assigns that question and its corresponding article to a domain (as per Koufogiannakis, Slater and Crumley 230). The descriptions Koufogiannakis, Slater and Crumley provide (Table 1) are not always granular enough. For example, the LIS Education subset definition is “Specifically pertaining to the professional education of librarians” (233). For the purposes of this article, the definition is extended to include any education associated with a library school or continuing professional development. If the article is on training, especially in-house training, or oriented towards specific work-related situations and issues, it is defined as belonging to the Management domain.

Authors, their Country Affiliations and Domains

Research shows more single than multiple authors, with few repeat authors over the five years. The majority of authors are affiliated with universities. There is a paucity of college-based articles. Also, more librarians as authors are publishing than authors affiliated with library schools. A strong correlation is found between authors in library schools and publishing in the LIS Education domain. Another is found between authors’ in libraries and publishing in the Management domain. Overall, very little international or cross-continent collaboration occurs between authors. The LIS Education domain includes the most international set of authors.

A small majority of articles in this research set, roughly 53.5%, are written by single authors (39 articles). This is barely consistent with the Weller, Hurd and Wiberley study, the Wiberley, Hurd and Weller study, and the Joswick study that show most refereed publications are produced by single authors rather than multiple authors. Articles with two authors (17) account for 23% of the articles, the second highest category. There are 122 unique author names in total and only 10 repeat authors in the data. One author published three articles (an LIS professor). Nine authors helped write two articles each. The rest of the authors’ in this study wrote or helped write one article as author or coauthor.

Most of the authors of the 73 articles are affiliated with universities (Table 3). Most collaboration is by authors within the same location in a university with fewer done intra-university or across universities (inter-university). Most collaborations recorded are from within university libraries with 15 articles (20%) involving 38 authors, then among library school authors at 9 articles (12 %) and 25 authors (counts include repeat authors). Only 8 articles are coauthored across library schools and university libraries (13 authors). There is very little international collaboration and these three articles are by authors' affiliated with library schools.

Table 3
Author Affiliations

Author Affiliation	# of Authors	# of Articles	# of Articles
College Library	3	3	3
Special Library	5	5	5
Library School	45	70 total	34
University Library	70		41
University Department	3		2

The author data in Table 3 challenged the assumption that library school faculty publish more articles than any other group. Library school faculty members are expected to publish for reasons of tenure and as professors may follow the same schedules as faculty at universities (e.g., two terms teaching and one term research). Thus it is expected LIS faculty will have more time for publishing than practicing academic librarians who are unlikely to have the same schedule as their colleagues.

Williams II and Winston state "a high percentage of the articles have been authored or coauthored by LIS faculty, which is consistent with the publication requirements associated with such positions" (400). Table 3 shows 34 articles authored or coauthored by persons affiliated with library schools. This is not as high a count as the 41 articles authored or coauthored by librarians affiliated with university libraries. It is also interesting to note more coauthoring is found among librarians, than among LIS faculty, based on the ratio of librarians to their published articles versus LIS faculty and their articles.

Wiberley, Hurd and Weller's survey of academic librarian publishing, 1998-2002, paralleled the data in Table 3, with their statement that "[m]ost studies of LIS journals show that academic librarians outnumber any other type of author…[and that] LIS faculty rank second overall" (212). But an earlier longitudinal survey by Weller, Hurd and Wiberley on academic librarian publishing, covering 1993-1997, stated "it appears that academic librarians who publish do so as frequently as LIS

faculty" (361) implying greater publishing by LIS faculty. These studies might reflect longitudinal shifts in the publishing of LIS professionals.

An important pattern tracked in this analysis is author-country affiliation. In 1999, authors Johnson and Winterton commented on differences in competency definitions between North America and the UK (8, 26-28). In 2005 LeDeist and Winterton noted that USA or North American competencies tend towards behavioral approaches while UK competences reflect an "occupational functional competence model" (27). They note a new framework replacing these is holistic and reflects the merging of functional, cognitive and behavioral approaches (LeDeist and Winterton 27). Thus country affiliations will be important for what they may reveal when investigating actual definitions from the academic librarian competency literature.

Also, if we accept "publications in academic journals…remain a vital element in the process of academic communication and evaluation" (Buela-Casal et al 45) and that "journals with wider national representation could increase the diversity of ideas and criticisms and be beneficial to the advancement of knowledge" (Buela-Casal et al 46) then exposure to research from around the world implies improved debate for those with access to this information. Associating country affiliation with author collaboration information may highlight more advanced definitions of competency.

When authors' country and work affiliations combine with the domains assigned to the articles (Table 4), interesting patterns reveal themselves. The most internationally represented content is written by authors affiliated with library schools, who write mostly on the subject of LIS Education. There are more articles associated with library-based authors, including colleges, than library schools. Most of these authors are based in the USA and write on the topic of Management (specifically training).

The most balanced representation of library school- and library-related authors is found in the Professional Issues domain. Two of the 6 articles written by authors in libraries are coauthored by library school authors, thus only 4 of the library schools articles are unique to library schools. Thus more of the articles (58%) are associated with library schools for the Professional Issues domain.

Table 4
Domains, Author Associations and Country Affiliations

Domains	# of Articles	Author Associations (# Articles)	Author Country Affiliation (# Articles)
Collections	1	Library/Library Schools	USA
Education	5	Libraries	USA
Education - LIS Education	19	Library Schools (15)	Australia; Botswana; Canada; Kuwait (2); Malaysia; Pakistan (2); Singapore; South Africa (2); UK/Peru/Argentina; UK/Slovenia; USA (2)
		Libraries (5)	USA
Information Access & Retrieval	1	Library	USA
Management	35	Libraries (28)	USA (21); Australia; Canada; Nigeria (2); Pakistan; Singapore; South Africa
		Library Schools (8)	USA (4); India; Iran; Singapore; UK
		Depts (2)	USA (2)
Professional Issues	12	Library Schools (7)	USA (2); UK; UK/Lithuania/Slovenia; Denmark; India; Poland
		Libraries (7)	USA (6); India
		Business School	UK
Reference/Enquiries	0	None	None

Journals that Publish and their Domains

Articles on academic librarian competency are dispersed through many journals in the LIS literature with few being explicitly identified as academic LIS journals. Table 5 represents the top ten journals that published on this topic, representing roughly 26% of the total journals that published on this topic and 40 of the 73 articles. Twenty-three journals published one article each, representing 59% of the total journals or 31.5% of the total articles. Few multiple articles are published within single issues of journals. The *Reference Librarian* published 4 articles in issue number 81 for 2003, *Library Review* published 2 in volume 54(4), 2005 and *Reference Services Review* published 2 articles in volume 32(3), 2004.

Only one of the top 10 journals is identified in *Ulrich's* as an academic LIS journal. It should be noted that descriptions are not available for all journals in *Ulrich's* but for the titles that were, only 5 are designated as academic library journals. These are *portal*, *Australian Academic & Research Libraries*, *College & Research Libraries*, *Community & Junior College Libraries*, and the *Journal of Academic Librarianship*. These academic journals represent only 7 articles in total. This does not mean the other journals mentioned in this study are irrelevant to those working in academic settings, just that they are not explicitly identified as academic LIS journals in *Ulrich's*.

Table 5
Top 10 Journals with Published Academic Librarian Competency Articles

# of Articles	Top 10 Journals that Published the Most Articles
8	Reference Librarian
6	Journal of Education for Library and Information Science
5	Reference Services Review
3	Education for Information
3	Journal of the Medical Library Association
3	Library Resources & Technical Services
3	Library Review
3	New Library World
3	portal: Libraries and the Academy
3	Research Strategies

The top journals in each domain are also identified. The Management domain contains six of the 8 articles published in the journal *Reference Librarian* making it the top journal, representing 17% of the total articles in this domain. Four of the 6 articles published in the *Journal of Education for Library and Information Science* fall within the LIS Education domain. This latter represents only 20% of the articles in this domain. None of these are academic LIS journals according to *Ulrich's*. While it is tempting to associate journals with domains, the correlations are not strong enough.

The Competency Literature in Indexes, Search Results and Domains

The 73 articles, retrieved from some indexes and not from others, were independently cross-checked in each index by title, or title and author, to see if missing articles were actually indexed in each database. This check occurred 8 months after the initial queries were run. The results show little difference between three databases for the number of articles actually indexed in each of these databases: LISTA (65), LISA (58) and LIBLIT (66). The indexes were missing 8, 15 and 7 articles respectively.

When analyzing the search results there are more obvious differences between the indexes (Table 2). Twenty-one hits are found only in LISTA and none of the other indexes, 13 only in LISA and 5 only from the CINAHL index. CINAHL and ERIC are shown to be poor choices for finding articles relevant to academic librarian competency, with poor retrieval results and with 59 and 64 articles respectively of the total of 73 articles not being indexed at all in those databases.

There is a strong association between most of the domains and articles found in LISTA. A majority of the Management domain articles are from LISTA (68%) and from LISA (60%) with a majority of LIS Education articles also from LISTA (74%). Nine articles or 75% of the articles representing Professional Issues are from LISTA with half from LISA.

The analysis of the indexes and search results show that searching of multiple indexes was warranted to achieve as comprehensive a set of search results as possible. The association with domains shows that the major part of the academic librarian competency discussion or research is located within one index, LISTA.

Incorporating Other Subjects

Another objective of this paper is to investigate Crumley and Koufogiannakis' 2002 statement that "evidence in librarianship comes from many disciplines. For example, when looking at a Management or Marketing type question, the authors stated that applicable solutions may readily be found in the business literature" (64). Also of interest is the peer-reviewed referencing found in the 73 articles for any incorporation of other literatures and as a potential implication of competency.

The data shows that a majority of the journals being cited by the authors in their references and notes are peer-reviewed. Of these peer-reviewed cited journals, 63% are relevant to disciplines beyond LIS. Only 83 journals (53.5%) are ascribed solely to non-LIS disciplines and have no LIS subject heading, as per Ulrich's. Based on this data it is reasonable to conclude that the authors incorporated information from other disciplines.

A total of 262 journals are referenced by the authors of the 73 articles. Of these, 155 journals (59%) are peer-reviewed titles and 108 (41%) are non-peer reviewed journals. The peer-reviewed journals' *College & Research Libraries* and *Journal of Academic Librarianship* each appear in 21 of the 73 articles. The second most common peer-reviewed title is *Journal of Education for Library and Information Science* which appears in 21 of the 73 articles on academic librarian competency. There are 95 peer-reviewed journals that only appear once in any one of the 73 articles, representing 61% of the titles. This suggests a broad culling of the published journal literature occurred.

When one counts the number of peer-reviewed citations per journal title in the references and notes of the 73 articles, there are a total of 656 citations. The most popularly cited journals are found in Table 6 below. Nine of the 10 are identified primarily as LIS journals by Ulrich's, while the *Bulletin of the Medical Librarian Association* had LIS listed as the secondary subject.

Four titles are found in common between the top 10 journals that published the articles in my research set (Table 5) and the 10 most cited journals in Table 6. These are the *Reference Librarian*, *Journal of Education for Library and Information Science*, *Reference Services Review* and *Education for Information.* These titles might be said to represent the core titles for academic librarian competency-related literature, based on this 5 year study.

Table 6
Top 10 Cited Journals

# Times Cited in the 73 Articles	Top 10 Cited Journal References
47	Journal of Education for Library and Information Science
44	Cataloging and Classification Quarterly
38	College & Research Libraries
32	Bulletin of the Medical Library Association
31	Journal of Academic Librarianship
23	Library Trends
23	Education for Information
22	Reference Services Review
19	Reference Librarian
18	Library Collections, Acquisitions, and Technical Services

Though only peer-reviewed, cited journal references are retained from the 73 peer-reviewed articles, an interesting result occurred which challenged an unfounded perception of what constitutes peer-reviewed research. A total of seven of the articles either have no references or citations (2 articles) or no peer-reviewed journal references or citations (5 articles). Further, 39 articles (53.5%) contain between 1 and 10 peer-reviewed citations (Table 7). Also, a number of the 73 articles do not meet Peritz's definition of research as quoted in Koufogiannakis, Slater and Crumley (241) as they are explanations that did not offer a systematic methodology to elicit new facts, concepts or ideas.

With the emphasis on the production of peer-reviewed articles by librarians for promotion and tenure, or permanence, there are an unexpected number of articles with few peer-reviewed journal citations (Table 7). Peer-reviewed

citations do not necessarily determine the quality of the article but by implication if one is referencing and using higher-quality content (peer-reviewed), one is producing the corollary, a supposedly higher-quality output.

Table 7
Number of Peer-Reviewed Citations Per Article

# of Cites per Article	# Articles	%
0	7	9.6%
1-5	21	28.8%
6-10	18	24.7%
11-15	13	17.8%
16-20	9	12.3%
21-30	5	6.8%

One approach to verify the inclusion of information from other disciplines is to identify references to non-LIS subjects in the 73 articles. This does not speak to the value of the information or to the degree of use, just the existence of consultation with LIS and non-LIS literature. Table 8 shows 26 different subject headings applied a total of 197 times to peer-reviewed journals. The subject heading applied most often is the LIS subject heading at 72 counts. A business article states “[C]ompetency programmes in the United States are theoretically grounded in behavioural psychology” (Rothwell and Lindholm 91) so it is interesting to note the low number of citations associated with these subjects.

Table 8
Incorporation of Subjects Based on Citations

Broad Subjects (Duplicate Subjects per Journal Title Ignored as well as Subheadings)	# Times the Subject is Assigned	Total # Citations
LIBRARY AND INFORMATION SCIENCES (LIS)	72	538
EDUCATION	39	104
MEDICAL SCIENCES	19	64
BUSINESS AND ECONOMICS	14	30
COMPUTERS	13	33
PSYCHOLOGY	9	12
SOCIAL SCIENCES: COMPREHENSIVE WORKS	4	4
SCIENCES: COMPREHENSIVE WORKS	3	3
BIOLOGY	2	2
ENGINEERING	2	2
MANAGEMENT	2	3
PUBLISHING AND BOOK TRADE	2	3
TECHNOLOGY: COMPREHENSIVE WORKS	2	2
ART	1	1
CHILDREN AND YOUTH	1	1
COMMUNICATIONS	1	1
CRIMINOLOGY AND LAW ENFORCEMENT	1	1
GEOGRAPHY	1	1
INSURANCE	1	2
JOURNALISM	1	1
LITERATURE	1	1
MUSIC	1	1
POLITICAL SCIENCE	1	2
PUBLIC ADMINISTRATION	1	2
PUBLIC HEALTH AND SAFETY	1	2
SOCIOLOGY	1	1

The LIS subject heading is the solo subject heading for 58 cited journals and there are 14 journals with the LIS subject heading plus at least one non-LIS subject heading, and 83 titles with no LIS subject heading. Thus 97 peer-reviewed journals are related to other disciplines and the articles cited likely incorporate information or ideas from these other disciplines. When one counts all the citations per title and then associates them with their subject heading, there are 538 cites for the LIS subject heading versus 279 cites for the non-LIS subject headings.

Conclusions

There are three major areas of focus in the LIS literature. The largest is the Management domain with 35 articles. The LIS Education subset, representing education and professional development subjects, has 19 articles making it second largest and 12 articles are assigned to the Professional Issues domain. The least relevant domains for academic librarian competency are Reference/Enquiries, Collections and Information Access & Retrieval, and Education.

Placing the articles within domains confirmed some assumptions and revealed unexpected trends. The majority of Management articles are written by authors in academic libraries. Thus academic authors are writing about academic librarian competency, an area in which they may be expected to have some expertise. Unexpected was the finding that these same articles are written mostly by US-based authors, likely slanting the literature in theory, process and perhaps conclusions. Since geographic regions are strongly associated with definitions of competency in the business literature, it will be interesting to explore parallels in a later article.

The number of articles on education and continuing professional development reflect a strong interest in competency and its presence in LIS Education. Most of these articles are written by authors at library schools, representing yet another university-based group writing in an area in which they have expertise. Unexpectedly, there is no discussion of LIS Education external to the US in libraries, it is only occurring in library schools.

What was also interesting about these two areas of focus was the minimal intrusion (roughly one-quarter) of library school-related authors into the Management domain and the library-related authors into the LIS Education domain. Equally interesting is that Professional Issues shows more equal representation of library school and library based authors. Overall, the largest discussion on LIS competency occurs in the United States with the UK a far second. This may be a result of limiting this research to English-language articles.

Most of the articles are written by university-based authors and 53.5% of all the authors are single authors. Only 3 authors (3 articles) are affiliated with colleges. Most university-based authors may be subdivided into authors affiliated with university libraries and authors affiliated with library schools, as noted in the paragraphs above and seen in Table 3. More coauthoring occurs among library schools' authors (12%) and even more among university library-related authors (20%) than occurs between these two groups. Boundaries play a strong role in who authors with whom, potentially playing a reinforcement role in any geographically-based definitions. If we accept Buela-Casal et al's (46) statements regarding scholarly communication, collaboration may reflect a more mature

discussion and rendering of competency and collaborations across borders even more so.

This study generated a top 10 list of journals that publish articles on academic librarian competency and a top 10 list of the most cited journals. There are 4 titles in common between the 2 lists: the *Reference Librarian*, *Journal of Education for Library and Information Science*, *Reference Services Review*, and *Education for Information*. These 4 titles may represent the core titles for academic librarian competency-related literature. None of these are identified as academic library journals in *Ulrich's*. Only 5 journals are explicitly identified as academic library-related journals and they represent only 7 of the total articles published. Based on *Ulrich's* data, the majority of academic librarian competency articles are not published in explicitly identified academic LIS journals. This does not mean the other journals the articles are being published in are irrelevant to those working in academic settings.

The majority of authors who write on academic librarian competency incorporate peer-reviewed information and information from other literatures. There are 72 peer-reviewed journals cited that are related to LIS as opposed to 97 journals related to other disciplines. When one counts all citations per journal, then associates them with their subject heading, the results show that there are 538 cites related to the LIS subject heading versus 279 cites for the non-LIS subject headings. Authors are citing more information from LIS journals but are incorporating information from a wide variety of other subjects or literatures.

38.5% of the authors cite 5 or fewer peer-reviewed articles in their references. This does not take into account any other peer-reviewed resources that may have been cited. Nor does it address the question of which resources LIS authors typically cite, books versus journals, etc. It was assumed that peer-reviewed articles would typically be cited, and that these articles would contain more than 5 peer-reviewed citations, based on the process to gain tenure or permanence. There is no established standard in any of the literatures or any study that I am currently aware of that offers averages for peer-reviewed citing.

The trends discovered in this research will inform another article consisting of a critical analysis of the authors' definitions and use of competency. Also, the information in this article will feed a holistic view or profile of academic librarian competency as promulgated by LIS authors in the peer-reviewed LIS literature.

Further research includes an investigation of competency-based statements produced by LIS associations on behalf of their members. It also includes another longitudinal study (1968-2000) to increase the data available to explore existing patterns and clarify uncertain patterns noted in this paper. Such a study would also extend our understanding of competency as used in the LIS field by enabling researchers to:

- Describe the universe of peer-reviewed academic librarian competency in the LIS journal literature; compare and contrast between and among the years; attempting to link this publishing information to standards and guidelines developed in the field;
- Take the Koufogiannakis, Slater and Crumley domains and use them to explore the concept of competency in other library contexts such as special libraries, public libraries and school libraries;
- Review some of the business management literature on competency and compare and contrast the maturity of that field to library and information science.

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