Inputs, Outputs, and Outcomes:
The Concept of Use in Library and Information Science

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Abstract:

In Library and Information Science (LIS), the concept of "use" has managed to remain both ubiquitous and ambiguous. In spite of its frequent appearance and discussion in LIS literature since *Library Journal* commenced publication in 1876, use is very rarely defined, even when it is used as an operationalized concept in empirical research. This dissertation will apply discourse analysis methodology to investigate the construction of the concept of use in the LIS journal literature from 1876 to 2006, framing the discussion in several broad periods in the development of LIS during those 130 years: the professionalization of librarianship (1876-1927), the establishment of the discipline of library science and documentation in America (1928-1947), the establishment of information science and information theory (1948-1967), the merger of information science and library science to create library and information science (LIS) (1968-1993), and the impact of technology on information science, librarianship, and LIS, especially as represented by the Internet (1994-2006).

I. Introduction and Statement of the Problem

Introduction

> "The overlapping meanings and ambiguities associated with 'use' make vigorous definition and limitation essential in the research situation" (Norman Roberts, 1975, p. 313).

The American Society for Information Science and Technology's (ASIS&T) Annual Meeting featured a panel discussion entitled "What's the use? Extending and Revising Notions of use and users in Information Behavior Research." According to the panel's description in the conference program, the need for this discussion was made clear at ASIS&T's previous conference when "questions were raised about how researchers of information behavior are defining such key concepts as information 'users' and 'use' in their work." Evidently, the discussion demonstrated that "researchers are defining these concepts in different ways and…new terms…are being used to describe related phenomena….these pivotal notions of users and use have not been thoroughly addressed since Zweizig and Dervin" in 1977! (ASIST, p. 449, 2002)

What *does* it mean to use a library or its information resources? Does one use the library merely by walking through the door, or must one remove a book from a shelf in order for use to take place? If these acts are not sufficiently significant to constitute occasions of use, will checking out a book suffice? If so, must the book be read? If the book must be read to constitute use, what effect must it have? Does use only occur if the information in the book is proven to have been applied by the patron in the form of a citation? The electronic age further complicates this question: how does one make use of the library without entering it? If remote access to a database through a

library's subscription seems to be an obvious instance of use to a librarian, is it equally obvious to the patron that she has used a library resource without leaving her home?

"Use" is a very common concept[1] in librarianship, library science, information science, and library and information science (LIS) research and practice. A search of the Library, Information, Science, and Technology Abstracts (LISTA) database for entries with "use" in the article title retrieves over 5,000 results. Although the frequency with which "use" appears in everyday English as well as LIS terminology means that many of those entries will not apply to this discussion, a cursory scan of the first several results reveals articles that are highly relevant: "Things We Use in Libraries and When They Were Invented" (*American Libraries*, 2006), "The Decline of Print: Ten Years of Print Serial Use in a Small Academic Medical Library" (Rosati, 2006), "The Effect of Use and Access on Citations" (Kurtz & Eichhorn, 2005) . These articles, which appeared in *American Libraries*, *Acquisitions Librarian*, and *Information Processing & Management*, respectively, represent a wide range of LIS publication.

In spite of the ubiquitous appearance of the term "use" in the literature of LIS, however, it is infrequently defined conceptually or operationally. More often, "use" is treated as a primitive concept in library research: an indefinable term so basic to the theoretical framework at hand that it need not be explained, nominally or operationally. This dissertation will examine the construction of the use concept in the professional and scholarly literature of librarianship, library science, information science, and library and information science from 1876-2006 in order to demonstrate that this is clearly not the case; use has been applied and understood in far too many ways in LIS for it to be treated as an irreducible concept.

In 1931, Shiyali Ramamrita (S.R.) Ranganathan published *The Five Laws of Library Science*, which remains one of the most enduringly influential works in the history of librarianship; in the years since 1984 it has been cited 49 times (at least once each year except 1989) by journals indexed by ISI's *Web of Science*. The first of Ranganathan's Five Laws of Library Science is, simply, "Books are for use." It is clear from Ranganathan's explanation of his first law that "books" is an analogy for all other library resources and services; Ranganathan says that following the first law has an impact on library policies for circulation, access, and hours; librarian service and attitudes toward patrons, building location and layout…even the location of the librarian's office within the building

[1] It might be helpful, here to briefly discuss the meaning of the word "concept," especially as it relates to our discussion. I use "concept" here in the philosophical sense, "The product of the faculty of conception; an idea of a class of objects, a general notion or idea" (OED Online, unpaged), as in Frank Bowen's Treatise on Logic: "a Concept is a collective (general or universal) representation of a whole class of things" (OED Online, unpaged).

(Ranganathan, 1957). Although the explanation of his first law is very extensive Ranganathan never explicitly defines what he means by "use."

The omission is by no means Ranganathan's alone. In spite of all the discussion of and references to use of the library and information resources, there is very little clarity about what use actually is or is not, even in the case of the "use study," which is usually an examination of very specific measures of patrons' library-related activities. Although a title and subject search for "use studies" in the *Library Literature and Information Science Full Text* database (commonly, and hereafter, referred to as *Library Literature*) yields nearly 4,000 results, a scan of the article abstracts reveals that "use" is employed as a stand-in for a diverse group of activities: checking out books (Rushton), studying in the library, entering the library (Albanese), removing an item from the shelf (Altman), or a combination of these and other measures. There is also a great deal of literature discussing a relatively recent concern, the measure of use of library-provided electronic resources that can be accessed online, such as proprietary databases.

Concepts and Empiricism in Library and Information Science and the Social Sciences; Use and Assessment in U.S. Libraries; Library Use and User Studies

Why does this matter?

LIS scholars and practitioners' heavy reliance on the concept of use for casual discussion, formal communication, and empirical study makes improving our understanding of the term essential. Norman Roberts's 1975 *ASLIB Proceedings* piece makes this clear:

> "Faced with terminological imprecision, social scientists have devoted considerable efforts to the solving of definitional problems and asking a 'large number of meaning questions.' This type of question also abounds in information science—what is need? What is use? What is benefit? Unfortunately, in information science, less effort has been expended upon the formulation of acceptable definitions of fundamental concepts..." (p. 308)

The lack of understanding of use becomes particularly more troublesome in the current environment of assessment and accountability facing libraries. As those responsible for providing funding to libraries (in the U.S. especially) become more focused on accountability and outcomes assessment and less interested in statistical measures of success, the need for a common language for discussing the contributions of libraries to their communities becomes all the more critical. Meanwhile, library services continue to change and diversify, particularly as they expand into the electronic environment. This expansion serves to simultaneously multiply the numbers and

types of uses of the library and its resources while removing many of these uses from the physical space of the library, where they can be observed by librarians, researchers, and administrators. As a result, researchers investigating remote library use are left with data about number of log-ons and length of sessions logged on to specific databases, the virtual equivalent of door counts and circulation statistics.

II. Research Design and Methodology

Approach to the Problem, Theoretical Framework

> "...Discourse analysis is the study of the way in which an object or idea, any object or idea, is taken up by various institutions and epistemological positions, and of the way in which those institutions and positions treat it. Discourse analysis studies the way in which objects or ideas are spoken about." (Finlay, 1987, p.2)

In addition to its everyday applications and meanings in American English, it is clear that "use" has a unique, important, if ambiguous, collection of meanings in LIS. How best, then, to come to an understanding of the concept of use in the LIS context? The methodological framework of discourse analysis offers a particularly well-suited approach to questions such as this. Phillips and Hardy's (2002) Discourse *Analysis: Investigating Processes of Social Construction* defines a "discourse" as "an interrelated set of texts, and the practices of their production, dissemination, and reception, that bring an object into being" (p. 3). The purpose of this study will not be to settle on an absolute definition of "use" within the LIS context, but to utilize the methodology of discourse analysis to examine the construction of the use concept in the scholarly and professional journal literature(s) of LIS from 1876 to 2006[2].

While discourse analysis uses language as its mode of inquiry, it differs from other speech-based approaches, such as content analysis, in that its unit of analysis is not at the word or sentence level, but the context of the language act. "Discourse analysis is not concerned with minute linguistic entities, but with larger units that have meaning, especially in a particular context." (Budd & Raber, 1996, p. 217). The object of study in discourse analysis is the text, broadly defined. In LIS, discourse analyses have been performed on textual units as diverse as library posters (Thomas, 2001), patron transaction transcripts (Chelton, 1997), and discussion of the meaning of "information" (Derr, 1985; Frohmann, 1992; Budd & Raber, 1996).

In discourse analysis, the researcher interrogates the text to answer questions both about the individual text itself, what Fairclough, (2003) refers to as "internal" elements, such as the text's origin, the consistency of its

[2] 1876, the year of the establishment of the American Library Association and *Library Journal*, is the widely acknowledged year that the *profession* of librarianship was founded. Information Science as a discipline is a mid-twentieth century development, and the marriage of library science and information science into LIS occurred later still, in the 1970's and '80's.

perspective, and the metaphors and other types of descriptive language applied within the text; and its relationship to other texts within the same discourse, called "external" elements by Fairclough: consistency of perspective with other accounts on the same topic, consistency with other work from the same time period, and consistency of descriptive language or metaphor with other works (p. 38).

Discourse analysis is also closely linked to genre analysis, the examination of traditions and forms that define a type of work, such as the scientific research paper or the thank- you note. "...When we analyse a text or interaction in terms of genre, we are asking how it figures within and contributes to social action and interaction in social events..." (Fairclough, 2003, p. 65) According to Fairclough, the basic concerns of genre analysis can be summarized as "What are people doing, what are the social relations between them, what communication technology (if any) does their activity depend on?" (p. 66) The identification of several different genres within discussions of use in the LIS literature is likely; this will add an additional layer of analysis as the construction of use within differing genres is evaluated and compared.

Discourse analysis is actually a broad spectrum of inquiry which includes approaches based in linguistics, Marxism, and critical theory, among others; much of discourse analysis in the social sciences is built upon the work of Michel Foucault. Ernesto Laclau and Chantal Mouffe's Discourse Theory (DT) also figures prominently in the discourse analysis tradition and follows a poststructuralist understanding of language, specifically, the belief that the meanings of elements of language (Saussure's "signs") are never and cannot be fixed, that ongoing language use requires shifts in meaning, and the belief that language use "is a social phenomenon: it is through conventions, negotiations and conflicts in social contexts that structures of meaning are fixed and challenged." (Phillips & Jørgensen, 2002, p. 25) According to Laclau and Mouffe (2001), we still attempt to fix the meanings of signs in spite of the impossibility of doing so. It is in these attempts to set the meaning of a sign within a discourse that analysis of the discourse can take place. Discourses are formed around nodal points, a "privileged sign around which the other signs are ordered," such as "library" or "information." (Phillips & Jørgensen, 2002, p. 26).

Although several LIS researchers have either applied the discourse analysis methodology to their own interests (Frohmann, 1992; Talja, 1999; Radford, 1993) or have discussed the applicability of DA to questions of interest to LIS (Budd & Raber, 1996; Frohmann, 1994) it is difficult to find much discussion of the specific methods applied in discourse analysis. One of the few studies to provide a tangible basis for examining the texts in question is Hedemark, et al.'s (2002) analysis of the discursive construction of "user" in a selection of Swedish library

journals. To assist them in their analysis, the authors developed a reading scheme based on Laclau and Mouffe's Discourse Theory (unpaged):

1: Designations User designations found in the articles	1: Categories Meanings attributed to the various user designations
3: Themes Themes and contexts within which users are being discussed and how it is done	4: Discourses Conceptions and meanings as a whole

It will be helpful to modify Hedemark, et al.'s analytic tool to the examination of the construction of "use":

1: Definitions/identifications Definitions or embodiments of use in individual works of literature within the corpus of study (literal/explicit)	2: Characteristics Significance of types of use as identified in individual works (implicit)
3: Themes Organization of characteristics in individual works into broader themes (implicit/explicit)	4: Discursive constructions Implications of thematic constructions of use to the larger discourses as identified (librarianship, library science, library science; time periods within study)

This framework will assist in answering questions about individual works:

- Is a study of "use" discussed?" If so, how is use operationalized?
- What is the theoretical framework being employed?
- How does the work contribute to the discursive construction of use?
- How does the work contribute to the discursive construction of LIS theory and practice?

Data gleaned from individual works will help to inform answers to the larger questions at hand:

- Has the representation of use in the LIS journal literature changed significantly over the course of the development of librarianship, library science, and information science?
- How has the concept of use developed in LIS literature since 1876?
- Has the concept of use as reflected in the literature changed as libraries and information seeking have changed?
- Has the concept of use as reflected in the literature changed as research interests in LIS have changed? If so, how?
- How has use been operationalized in use and user studies?
- How have theoretical, descriptive, or philosophical discussions of use diverged from empirical use and user studies' presentation of the concept?
- Is "use" related to the "user" in the literature? How?

Structure of Inquiry

> "Any analysis whose aim is to show how information, its users, and its uses are discursively constructed is, necessarily, a historical project." (Frohmann, 1994, p. 127)

While LIS as discipline and practice certainly share a corpus of written work, since the founding of *Library Journal* in 1876 the discipline has grown to accommodate hundreds of journals on ever-more specific areas of librarianship and information science. Likewise, since the founding of the American Library Association, also in 1876, the number of professional organizations associated with librarianship and information science has increased dramatically. Even the nomenclature used to describe what was once known as "librarianship" or "library economy" has expanded to include information science, digital librarianship, special librarianship, academic, public and school librarianship, library science education; once one has taken an insider's view, it is difficult to argue for *one* appreciable "discourse" of LIS. It seems more likely that there are several interrelated but ultimately separate discourses representing aspects of the field that can be distinguished in several different ways, for example, LIS as a practice vs. LIS as a theoretical endeavor. Paying attention to the context in which a text is created is a critical aspect of discourse analysis, as "it is this connection between discourses and the social reality they constitute that makes discourse analysis a powerful method for studying social phenomena" (Phillips & Hardy, 2002, p. 5).

How has the discussion of the use concept changed and developed over the years? How have changes in the way use is discussed and conceived of reflected larger changes in Library and Information Science theory and practice? In order to examine these two important questions it may be helpful to identify some periods of broad change in LIS as a means to frame the literature and our discussion. It is my goal to take what Phillips and Hardy call a "three-dimensional" approach to examining the discourse of use, attempting to "connect texts to discourses, locating them in a historical and social context…" (p. 4). Specifically, the time periods that I will focus on are as follows:

Table 1: Summary of Time Periods in the Development of Librarianship, Library Science, Information Science, and Library and Information Science, 1876-2006

Time Period	Significance of Time Period	Events
1876-1927	The Professionalization of Librarianship	▪ American Library Association (ALA) established, begins publishing *Library Journal* ▪ 1876 Report published ▪ Education for librarians established ▪ First professional tools for librarianship, including the Dewey Decimal Classification (DDC) created ▪ C.C. Williamson publishes Carnegie-commissioned report on librarian education ▪ International Institute of Bibliography (IIB) established in Brussels
1928-1948	The Establishment of Library Science; The Establishment of Documentation in America	▪ The Graduate Library School (GLS) established at University of Chicago for doctoral-level study of librarianship ▪ GLS Director Pierce Butler writes the Introduction to Library Science ▪ *Library Quarterly*, the first research-oriented library publication, begins publication ▪ American Documentation Institute (ADI, later ASIS and ASIS&T) established,

		begins publishing *Journal of Documentary Reproduction*
1948-1968	Information Theory and Information Science	▪ Increase in federal research money awarded to academia ▪ Weaver writes forward to Shannon's *Mathematical Theory of Communication* (MTC) ▪ Technological capabilities related to information storage and retrieval advance rapidly
1968-1993	Library Science and Information Science become Library and Information Science (LIS)	▪ ADI changes its name to ASIS (American Society for Information Science), changes its publication name to Journal of the American Society for Information Science (JASIS) ▪ Some graduate schools of librarianship change names to schools of library and information science ▪ Journals begin to shift focus to include more library- or information science-related material ▪ Information science takes its "cognitive turn" ▪ Information technology becomes more widespread/influential in both information science and librarianship. According to some, this leads to cross-pollination between the two fields
1994-2006	The Internet Revolution	▪ Information seeking moves to the electronic platform ▪ Statistical measures of library use decrease in second half of the 1990's ▪ Information seeking processes less tied to the physical library than ever

Building a Body of Literature

Examining 130 years of journal literature in any field is a daunting task, and the literature of LIS is perhaps complicated by the diversity of viewpoints represented: there are peer-reviewed journals in every subset of librarianship, information science, library science, and library and information science. LIS journal literature is covered by two print subject indexes: Cannon's *Bibliography of Library Economy* (1876-1920), which was renamed *Library Literature* in 1921, and *Library and Information Science Abstracts (LISA)*, which began publication in 1969. *Library Literature* is available in electronic format, as *Library Literature and Information Science Full-text*. Electronic indexing coverage is also provided by *Library, Information Science and Technology Abstracts*.

Another approach to building a corpus of literature for study is through the "citation chaining" technique: selecting a few works (we'll call them A, B, and C) that have been influential in the subject area and expanding the data pool by adding works cited in A, B, and C, as well as works in which A, B, and C have been cited. The assumption behind citation chaining is that a work cited can be assumed to either support or be in conflict with the citing work; therefore, this allows for the construction of a more representative body of work for examination.

This approach is especially helpful in situations in which indexing cannot be relied upon consistently, which makes it appropriate for constructing the corpus of use literature for the years 1876-1976. Although library-related literature is indexed as far back as 1876 in Cannon's *Bibliography of Library Economy*, discussions of the use concept are not readily apparent in any of the subject headings. Although *Library Literature*, Cannon's successor, began to include abstracts for a selection of indexed articles in its 1933-35 volume, many of these are too brief to

form an opinion of the relevance of the article to the question at hand. Taking the citation chain approach will build a more representative and meaningful body of literature (1876-1979) for examination than approaching the literature through either *Library Literature/Cannon's* or a hand-search of selected journals. Electronic indexing of LIS literature from the late 1970's onward is thorough enough to allow searches of *Library Literature and Information Science Full-text* (1984- *), Library, Information Science & Technology Abstracts* (1970-) and the *Web of Science* (1985-) to serve as the main tools for building a body of literature discussing use for the years after 1979.

While the selection of the year 1979 may seem to be a somewhat arbitrary point of departure, the late 1970's were, in fact, a real watershed moment in the discussion of the library use concept. The following works will serve as "seed texts" for the creation of the citation chain:

Line, M. B. (1974). Draft definitions: Information and library needs, wants, demands, and uses. *ASLIB Proceedings, 26*, 87.

In this publication, Line presented "Draft Definitions" for several concepts related to library use. Specifically: need (what an individual ought to have,) want (what an individual would like to have,) demand (what an individual asks for,) and use (what an individual actually uses.)

Roberts, N. (1975). Draft Definitions: information and Library Needs, Wants, Demand and Users: A Comment. *ASLIB Proceedings, 27*(7), 308-313.

Roberts commended Line for attempting to define the terms associated with user studies, acknowledging that "a large number of meaning questions" plague information science. Although he accepts Line's definition of use as a "satisfied demand," he points out that this definition only reflects the point of view of the patron, not the librarian. In the execution of use studies, librarians frequently choose to operationalize library use in ways that can be measured easily. For example, a use study of a reference collection might be conducted by counting the number of volumes that must be re-shelved during a specific period of time, each of which would constitute a "use" of the reference collection. Roberts's contention was that this type of study only represents use from the viewpoint of the librarian, not the patron: "It seems…obvious that…taking a book off the shelf does not constitute 'use' from the individual's standpoint" (p. 312).

Zweizig, D. L., & Dervin, B. (1977). Public Library Use, Users, Uses: Advances in Knowledge of the Characteristics and Needs of the Adult Clientele of American Public Libraries. In M. Voight & M. Harris (Eds.), *Advances in Librarianship* (Vol. 7). New York: Academic Press.

The authors discussed the shortcomings of the positivist, statistics-based nature of use and user studies prevalent at the time, asking if "…the focus of these 'user' studies is, indeed, helpful" (p. 246). Concluding that these studies were not, in fact, useful in understanding the true nature of user needs, Zweizig and Dervin advocated instead for a more constructivist, situational, and user-centered approach to the study of library users and uses.

Zweizig, D. L. (1977). Measuring library use. *Drexel Library Quarterly, 13*(3), 3-15.

Zweizig observed that measures of library use were traditionally based on input measures, such as money spent

on materials or hours of operation, which demonstrate only the potential for service. He advocated assessment of actual use, which would call for a change in conceptualization and methods. In this article, Zweizig outlined his conception of use, users, and uses and the differences between them. Zweizig and Dervin's works have been influential: Prudence Dalrymple (2002) published a review of the impact of Zweizig and Dervin's work, reviewing studies that had implemented the user-centered approach in the years between 1977 (when Zweizig and Dervin's article was published) and the year 2000, finding 83 articles that cited Zweizig's 1976 article in *Drexel Library Quarterly* and his and Dervin's 1977 article.

Burns Jr., R. W. (1978). Library Use as a Performance Measure: Its Background and Rationale., *Journal of Academic Librarianship* (Vol. 4, pp. 4-11): Elsevier Science Publishing Company, Inc.

Burns discussed his perception of a movement away from a "materials orientation" of library use research to a "user orientation." Burns's article also discusses the concept of measurement by "inputs," which are "…needs or requirements of the system to operate or resources consumed in the operation of a system, e.g., money, and "outputs," or "…products of a system, or…the impacts of consequences of the system's operation" (p. 4-5). Outputs can be assessed more broadly, through measures including circulation statistics, improved standardized test scores, or employment success of graduates.

Kent, A., et al. (1979). *Use of library materials: the University of Pittsburgh study*. New York: Marcel Dekker, Inc.

Kent's study came to be known as "the Pitt Study," reported the findings of a mixed-methods library materials use study at the University of Pittsburgh, the purpose of which was "to develop measures for determining the extent to which library materials (books/monographs and journals) are used, and the full cost of such use" (Kent, 1979, p. 1). The findings of the study were hugely controversial.

The use of these particular works will allow for the assemblage of an illustrative and representative body of literature.

Conclusion

My goal is not to fully explicate the concept of use and provide a final, operationalizable definition of the concept; I am not sure that this is either attainable or practical. Rather, I am interested in exploring the ways in which use has been discursively constructed in the library and information science literature since 1876. In addition to helping to clarify an ambiguous concept, this research will illuminate the difficulties and repercussions of failing to clarify the application of terms, especially in supposedly empirical contexts such as the use or user study. Additionally, by employing the use concept as a lens through which to examine the history of librarianship, library science, information science, and library and information science, my intention is to provide a unique perspective on a rich and diverse, though sometimes confused and disjointed tradition of scholarship and practice.

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