Minting the Obverse:
Library and Information Studies as a One-Sided Coin

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ABSTRACT

A synthesis of the work of Michael Buckland reveals the critique that, for too long, LIS has been a one-sided coin. Growing out of professional education, LIS has traditionally nurtured only its applied, practical and empirical side. Challenging this imbalance, emerging research in LIS points to the development of the basic, liberal arts and conceptual side of the discipline. Indeed, the advent of JCLIS reflects this trend. An interest in basic LIS is welcome for a number of reasons: By clarifying key concepts, it will lead to improved practice; by contributing more widely to human knowledge it will fulfill the obligations of being an academic research department; and by exploring information issues which are becoming relevant to all members of society, it will realize a greater purpose. This paper surveys the extent to which the basic side of LIS has emerged, examining the content of the top LIS journals and the curricula of the top LIS institutions. The findings point to an inchoate reverse, but one with numerous challenges that remain beyond the horizon. This paper serves as an invitation to researchers and educators to consider how they can further contribute to minting the basic side of the coin of LIS.

INTRODUCTION

"Highly centrifugal" was the way Howard White described LIS at the turn of the 21st century.[1] He saw the discipline as expanding and chaotic, without clear principles around which to cohere. White called for researchers—or "scientist-poets," rather—to synthesize the career-spanning contributions of individuals in the discipline "through some single, powerful metaphor or thematic statement"[2] or, failing poetic ability, through the narrative-weaving of a journalist. His call was echoed[3] but largely unheeded. Indeed, signs pointed to regression: In 2011, the Association for Information Science & Technology ceased publication of its *Annual Review of Information Science and Technology*,[4] which had been publishing just the sort of annual syntheses that, in White's view, our discipline so desperately needed. Not long after, Paul Sturges called much of LIS research "dull, formulaic and often disgracefully bad."[5]

Now, a few years later, the state of the discipline does not seem quite so dismal. A small but growing group of researchers has contributed to both conceptually clarifying LIS and imbuing our discipline with a measure of disciplined imagination. And in today's milieu, we can see that they've been with us for some time. Jenna Hartel, for example, *did* respond to White's call for scientist-poets, elegantly encapsulating the work of Marcia J. Bates in the image of "castles and inverted castles."[6] Yet such brightening of the disciplinary room is not recent for her; she and Jarkko Kari long ago made the call for information scholars to direct their attention to the positive and profound in life, rather than merely the cognitively problematic.[7]

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[1] Howard D. White, "Scientist-Poets Wanted," *Journal of the American Society for Information Science* 50, no. 12 (January 1999): 1052–53.

[2] Ibid., 1052.

[3] Sheila Webber, "Information Science in 2003: A Critique," *Journal of Information Science* 29, no. 4 (August 1, 2003): 311–39; Adrian Staii, "Réflexions sur les recherches et le champ des sciences de l'information," *Les Enjeux de l'information et de la communication* me 2004, no. 1 (October 9, 2014): 50–62.

[4] Association for Information Science and Technology, "ARIST to Cease Publishing Following 2011 Volume," 2010, https://www.asis.org/news/ARISTcease.html.

[5] Paul Sturges, "Imagination in LIS Research," *Library and Information Research* 36, no. 113 (December 18 2012): 15.

[6] Jenna Hartel, "Castles and Inverted Castles: The Work of Marcia J. Bates," in *Proceedings of the Eighth International Conference on Conceptions of Library and Information Science,* (Copenhagen, Denmark: Royal School of Library and Information Science, 2013).

[7] Jarkko Kari and Jenna Hartel, "Information and Higher Things in Life: Addressing the Pleasurable and the Profound in Information Science," *Journal of the American Society for Information Science and Technology* 58, no. 8 (June 1, 2007): 1131–47, doi:10.1002/asi.20585.

In this spirit, I begin this discussion by reviewing the main thrust of the work of another member of this small-but-growing group: Michael Buckland. Through this review I will illustrate that Buckland's work in the discipline can be summarized in the critical mantra: *LIS is a one-sided coin.*

As will be discussed, an academic discipline, like a coin, has two sides—one basic (or liberal arts) and one applied (or professional)—but LIS has historically cultivated one side (the applied) at the expense of the other. But Buckland's work was not an idle critique: Rather, he pointed the way toward minting the other side of the coin. Over twenty years have now passed since Buckland began his project, and thus a progress check is called for. This discussion contributes to checking the progress of LIS by evaluating the liberal arts activity within the discipline today in terms of conceptual research and undergraduate education. On this view, it seems that the inroads sketched by Buckland are beginning to be trodden and even, perhaps, paved, but there is much more work to be done.

CRUCIBLE: MICHAEL BUCKLAND'S CRITIQUE

On his faculty profile on the University of California, Berkeley, School of Information website, Buckland's research interests are listed as "library planning, management, academic libraries, and information retrieval."[8] While this certainly names the topics that have been of interest to Buckland over the course of his career, such a description fails to capture the essence—and real importance—of his work. In my view, Buckland has lain—or, perhaps, excavated—the foundation for our discipline—a foundation which only orthogonally relates to "library planning, management, academic libraries, and information retrieval."

The way the School of Information frames Buckland's research reflects a bias toward the dominant conception of LIS as a discipline for the teaching of technical professional skills. This comes as no surprise; LIS has traditionally focused on teaching and researching that which would be technically useful to professionals working as librarians, information managers, and the like. But it cannot be ignored that Buckland's own work, since the publication of *Information and Information Systems,*[9] continually challenged that conceptualization of the discipline.

Arguably Buckland's most important work has centered around the conceptualization of notions such as *information* and *document*. These concepts, though central to our discipline, had not been critically conceptualized in Anglophone LIS after

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[8] "Michael Buckland (Faculty Profile)," *UC Berkeley School of Information*, n.d., https://www.ischool.berkeley.edu/people/michael-buckland.

[9] Michael K. Buckland, *Information and Information Systems* (Westport, CT: Praeger Publishers, 1991).

Claude Shannon's mathematical theory of communication.[10] Though Shannon's information inspired and allowed any number of technical advances, it proved limited in discussions at the intersection of information and human beings. Information scientists were, with respect to these notions, something like Saint Augustine with respect to time: "What then is time? If no one asks me, I know. If I wish to explain it to one that asketh, I know not..."[11]

As Augustine explored time, Buckland explored documents. Stemming from his monograph,[12] Buckland's paper "Information as Thing" was among the first English works to conceptualize what information really is – as a reference to knowledge, as a process, and as a thing.[13] Particularly, Buckland homed in on the last of these, *information as thing* – after all, "it is with information in this sense that information systems deal directly"[14] – and brought the work of Paul Otlet and Suzanne Briet to the Anglophone world. This led to the development of the concept of *document*, to which he contributed through a series of papers that have since been cited hundreds of times by researchers in all corners of LIS, and even in other disciplines:

- "Documentation, Information Science, and Library Science in the USA," which explored the 20th-century separation of European and American information science (qua documentation)[15]
- "What Is a Document?" which introduced to contemporary information science a number of European conceptualizations that saw documents as far broader than merely words on paper, also drawing links to cultural anthropology and semiotics[16]
- "Northern Light: Fresh Insights into Enduring Concerns" which offered a conceptual framework for research in the so-called Neo-Documentalist tradition, delineating three lines of inquiry (cultural, social and documental) and

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[10] Claude Elwood Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Urbana, IL: University of Illinois Press, 1969).

[11] Saint Augustine, *The Confessions of Saint Augustine*, trans. Edward Bouverie Pusey (Project Gutenberg, 2002), sec. 11.14.17, https://www.gutenberg.org/files/3296/3296-h/3296-h.htm.

[12] Buckland, *Information and Information Systems*.

[13] Michael K. Buckland, "Information as Thing," *Journal of the American Society for Information Science* 42, no. 10 (December 1991): 351–360.

[14] Ibid., 352.

[15] Michael K. Buckland, "Documentation, Information Science, and Library Science in the USA," *Information Processing & Management* 32, no. 1 (January 1, 1996): 63–76.

[16] Michael K Buckland, "What Is a 'Document?,'" *Journal of the American Society for Information Science* 48, no. 9 (1997): 804–809.

suggesting that documents had three dimensions (meaningful, technological and socioeconomic)[17]

- "Document, Documentation, and the Document Academy: Introduction," which formally introduced the Document Academy, a research community that, by the date of the publication, had already been meeting for a number of years and was provably stable[18]
- "Documentality Beyond Documents," which furthered the notion of document by demonstrating how anything could be considered as a document from a semiotic perspective, even if it was not expressly made as or into a document[19]

These papers form the canon for modern document theory, which surely has impacted and will continue to impact technology, design and practice—but only indirectly. It is important to note that such applications were not the immediate motivation for Buckland's work. As Buckland testifies, this work was pursued for its own sake, independent of the stated problems and research agendas of the field.[20] Such was called for decades prior by Eugene Graziano, who argued that "there is a place for free philosophical speculation in this field to formulate systems of logical propositions which are self-consistent and which show necessary relationships among the phenomena of documentation."[21]

This sort of philosophical speculation, in Graziano's and later Buckland's view, was vital for the maturation of LIS. And particularly so if the S is taken to stand for *science*: As both Buckland and Rayward describe, any science must have both a theoretical side and a practical side which mutually affect, enhance and inform each other.[22]

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[17] Michael K. Buckland, "Northern Light: Fresh Insights into Enduring Concerns," in *A Document (Re)turn: Contributions from a Research Field in Transition*, ed. Roswitha Skare, Niels Windfeld Lund, and Andreas Vårheim (Frankfurt: Peter Lang, 2007), 316–22.

[18] Niels Windfeld Lund and Michael Buckland, "Document, Documentation, and the Document Academy: Introduction," *Archival Science* 8, no. 3 (September 1, 2008): 161–64, doi:10.1007/s10502-009-9076-3.

[19] Michael K. Buckland, "Documentality Beyond Documents," *The Monist* 97, no. 2 (2014): 179–86.

[20] Michael K. Buckland and Niels W. Lund, "Boyd Rayward, Documentation, and Information Science," *Library Trends* 62, no. 2 (March 20, 2014): 302–10.

[21] Eugene E. Graziano, "On a Theory of Documentation," *American Documentation* 19, no. 1 (January 1, 1968): 89.

[22] Michael Buckland, "What Kind of Science Can Information Science Be?" *Journal of the American Society for Information Science* 63, no. 1 (January 2012): 1–7, doi:10.1002/asi.21656; W. Boyd Rayward, "Information Revolutions, the Information Society, and the Future of the History of Information Science," *Library Trends* 62, no. 3 (2014): 681–713.

In this sense, Buckland's key contribution to the discipline was not in defining "document" *per se*, but rather the reflectiveness with which he worked: Through rigorous conceptual analysis, Buckland performed an important critique of the discipline: He challenged LIS to nurture its theoretical side. The practical, applied, technical side of LIS—the only side that most information scientists ever saw or thought about—had been hewn to the point of the unimaginative, formulaic repetition that Sturges lamented[23] (which suggests that, perhaps, the discipline had hit a limit in the progress possible through purely practical research); consequently, the other side—the theoretical, basic, liberal arts side—had hardly been sketched.

THE LIBERAL ARTS SIDE

The *liberal arts* comprise those academic subjects that are pursued for their own sake—out of intellectual curiosity—rather than for attaining the technical or professional skills needed for any particular job. They include art, history, language, literature, mathematics, natural science and philosophy, among others. But it is not the case that some disciplines are simply liberal arts in nature while others are not. Rather, as Buckland observed, the disciplines, on a conceptual level, have two sides: on one hand, a liberal arts side, which can also be termed *basic* or *theoretical*; and a practical side, which can also be called *applied* or *technical*.[24] In the institutional structure of the university, these sides may be estranged in separate departments: for instance, "English literature" can be conceptualized as the liberal arts side of "journalism," and likewise for "economics" and "finance," as well as "chemistry" and "biomedical engineering." In this light, the liberal arts can be defined as those scholarly pursuits which are pursued for their own sake rather than to solve a technical problem. The methods of such pursuits, as described by Ron Day, involve critical and dialogic engagement with *ideas* rather than the passing invocation of "evidence" in the presentation of proof-like findings.[25]

The United States has had a strong tradition of liberal arts education that, in turn, draws from European educational traditions.[26] It is manifested most clearly in dedicated liberal arts institutions, which prototypically boast undergraduate-only arts-

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[23] Sturges, "Imagination in LIS Research."

[24] Buckland, "Documentation, Information Science, and Library Science in the USA."

[25] Ronald E. Day, *Indexing It All: The Subject in the Age of Documentation, Information, and Data* (Cambridge, MA: MIT Press, 2014).

[26] Michael K. Buckland, "The 'Liberal Arts' of Library and Information Science and the Research University Environment," in . *Second International Conference on Conceptions of Library and Information Science Integration in Perspective, 1996, Proceedings* , ed. Peter Ingwersen and Niels Ole Pors (Copenhagen, Denmark: Royal School of Librarianship, 1996), 75–84, http://people.ischool.berkeley.edu/~buckland/libarts.html.

and-sciences curricula, small class sizes, close student–faculty relationships and on-campus student residence. Liberal arts education has long been valued for the preparation of broad-minded graduates. Still, a recent trend, documented by Baker, Baldwin and Makker, suggests the decline of liberal arts education in America in the face of numerous threats: economic competition with, for instance, for-profit and online institutions, and an emerging service-based job market that emphasizes practical skills over general knowledge.[27] In effort to adapt, many liberal arts colleges in the United States have begun supplementing their curricula with internships, service learning, undergraduate research and study abroad in order to connect the student experience "more directly" to life after graduation. In their review of the evolution of liberal arts institutions from 1990 to 2012, Baker et al. found that only about half remained purely liberal arts, while the other half began awarding progressively more of their degrees in professional fields.

Though liberal arts institutions are perhaps the purest manifestation of the liberal arts tradition, it is important to note that countless other institutions still cultivate the spirit of *Bildung* without being called liberal arts institutions. For example, I completed my undergraduate studies in Advertising, with a second major in Spanish for the Business Professions—both praxis-oriented programs—at Marquette University, which is a Jesuit research institution that offers a panoply of other undergraduate and graduate degree programs with a professional focus. Still, all students are required—in the spirit of the Jesuit maxim *cura personalis* (nurturing the whole person)—to take courses in cultural studies, history, literature, mathematics, natural science, philosophy, rhetoric and theology. Such "gen eds" are requisite at virtually all universities across the country. Indeed, they are one of the characteristics that distinguish a four-year university degree from an associate's degree or other professional certification.

If a liberal arts pursuit is understood as one half of a complete discipline, then "mixed" institutions such as Marquette can be said to offer fuller training in their respective disciplines. Moreover, Buckland argues that the cultivation of both the liberal arts and applied sides of a discipline is necessary for the constitution of a bona fide university offering (which, as described above, may find articulation in more than one department, often for political reasons).[28]

In the case of LIS, Buckland observes that the discipline traditionally focused only on creating technically competent professionals through graduate-level training.[29] The next section explores how, with this exclusive focus, LIS has not been fulfilling its

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[27] Vicki L. Baker, Roger G. Baldwin, and Sumedha Makker, "Where Are They Now? Revisiting Breneman's Study of Liberal Arts Colleges," *Liberal Education* 98, no. 3 (2012): 48–53.
[28] Buckland, "The 'Liberal Arts' of Library and Information Science and the Research University Environment."
[29] Ibid.

obligation as a true academic endeavor or, moreover, its obligation to society at large. These obligations notwithstanding, I would also highlight that cultivating the basic side of a discipline strengthens the applied side—and vice versa—just as each side of a coin supports the other.

ALL COINS HAVE TWO SIDES

A terrible reality of coins is that, though all coins have two sides, only one side can be seen at a time. To appreciate the detail in one side, we must be blind to the other. Of course, both sides can be seen at once—in a way, at least—with the help of a mirror. Similarly, apprehension of both the basic and the applied sides of a given discipline seems to be the purview of the only most reflective of individuals. This is a great misfortune; it has, I think, caused theoreticians and practitioners each to undervalue—and, moreover, duplicate—the work of the other. This is reflected in the observation of Herbert Simon:

> The sometimes explicit premise that utility is the only touchstone of relevance for knowledge in the professional school, and the sometimes implicit premise that *in*utility is the only touchstone of relevance in the disciplines are mischievous doctrines that have caused untold harm to education in both professions and disciplines.[30]

To begin to bridge this gap, this section explores the relationship between theory and practice in LIS and what this means for LIS as an academic discipline.

Improved Theory, Improved Practice

The basic side of science is motivated for its own sake, but that doesn't mean it can't be used for other purposes. At its best, "theory always affirms practice, and practice justifies theory."[31] Jay Bolter points out, for instance, that, though computer theory predated computers, the advent of the machines themselves justified further theoretical work, and similar mutual reliance carries on in human–computer interaction and software engineering. As Simon put it, practitioners require information that comes

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[30] Herbert A. Simon, "The Business School: A Problem in Organizational Design," *Journal of Management Studies* 4, no. 1 (February 1, 1967): 4.

[31] Jay David Bolter, "Theory and Practice in New Media Studies," in *Digital Media Revisited: Theoretical and Conceptual Innovations in Digital Domains*, ed. Gunnar Liestøl, Andrew Morrison, and Terje Rasmussen (Cambridge, MA: MIT Press, 2003), 16.

from two sources: field experience and scientific inquiry.[32] Indeed, the basic and the applied can sometimes be so intertwined that it is difficult to separate them.

Attempting to carry on without information supplied by scientific inquiry—from the liberal arts side of the discipline—can be problematic. Zoran Velagić, for instance, in an analysis of the scholarly discourse on the notion of *book*, shows how a lack of basic consideration of what a book actually is has led to inconsistent understandings of printed books, e-books and other book-like information objects, which has led to misunderstandings within the research community, across research disciplines and between academia and industry.[33] The severe tilt toward the applied in LIS, described by Buckland,[34] seems to be the root cause here; it may also account for our discipline's lack of consensus regarding the notion of *information*, which is often seen as central to research and practice in LIS—not to mention the validity of its being seen as central in the first place, which is questioned by scholars such as Jonathan Furner.[35]

With all this in mind, LIS would do well to note that research doesn't always need an explicit, immediately-identifiable design component or applied outcome, for theoretical advances may lead to these outcomes in indirect and unexpected ways. This has been recognized in other disciplines, but not to a great extent in ours. This is, I hope, beginning to change, as evidenced in, for instance, the continual burgeoning of the neo-documentalist tradition within LIS.[36]

Being at Home in the University

Though LIS has traditionally been concerned with educating practitioners, today all accredited LIS programs—at least in the United States—dwell in research universities. As such, LIS programs are expected to contribute to the university's overall research agenda, furthering human knowledge in ways that are broadly relevant to society. Indeed, the American Library Association, which accredits these programs, includes faculty research in its accreditation standards,[37] explicitly recognizing the

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[32] Simon, "The Business School: A Problem in Organizational Design."

[33] Zoran Velagić, "The Discourse on Printed and Electronic Books: Analogies, Oppositions, and Perspectives," *Information Research* 19, no. 2 (June 1, 2014).

[34] Buckland, "The 'Liberal Arts' of Library and Information Science and the Research University Environment."

[35] Jonathan Furner, "Information Science Is Neither," *Library Trends* 63, no. 3 (April 17, 2015): 362–77.

[36] Lund and Buckland, "Document, Documentation, and the Document Academy."

[37] American Library Association, "Standards for Accreditation of Master's Programs in Library and Information Studies," 2015, sec. III.5, http://www.ala.org/accreditedprograms/sites/ala.org.accreditedprograms/files/content/standards/Standards_2015_adopted_02-02-15.pdf.

importance of both basic and applied research as important to furthering knowledge in the discipline[38] and asserting also that students should conduct their own research as part of their studies.[39]

The challenge for LIS, then, is to fulfill its responsibilities for conducting both basic and applied research while respecting its duty to educate professionals. Simon detailed a way forward through this very challenge in business education.[40] Just like library schools, business schools have primarily served to educate students for professional roles, but as academic departments they must also contribute to furthering knowledge. To achieve this, Simon says, business schools must employ faculty with both basic and applied research projects:

> The business school does not stand a chance of recruiting first-rate scientists if it insists that all research done in its walls must have direct relevance to business. It will do better to demonstrate its respect for [basic] research by having, and valuing, in its faculty at least some members much of whose work does not have obvious relevance to business, but does command high respect in its discipline.[41]

But Simon notes that simply hiring a broad range of faculty is not enough to ensure effective research and practical education; a number of organizational barriers must be overcome, which requires synthesis stemming from the level of department management, particularly with respect to the curriculum.

In Buckland's view, information schools have long been effective at preparing professionals, but they have not engaged in basic inquiry; most research has been design-oriented rather than regarding the pursuit of more general knowledge.[42] Moreover, they have not successfully engaged the rest of campus in these efforts. This means that LIS programs have not followed through on their research obligations, bringing question to LIS's place as a department in the research university setting and forestalling progress in the discipline's maturation. Not only that, but such a narrow focus has served to dispel interest in the discipline in general: Student interest in LIS is limited to those who seek to be librarians, but given the richness to be found at the intersection of "information, technology, and people," this ought not to be the case.

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[38] Ibid., sec. II.2.2.

[39] Ibid., sec. IV.5.2.

[40] Simon, "The Business School: A Problem in Organizational Design."

[41] Ibid., 10.

[42] Buckland, "The 'Liberal Arts' of Library and Information Science and the Research University Environment."

If it really is the case that we are moving into an information age (the particular name of which varies by commentator), Buckland argues, then it should follow that LIS has something deserving of wide, general attention and should offer courses that are of interest to a large number of students.[43] Buckland remarks on the need for an academic discipline concerned with studying the role of information across society—an obvious role for LIS. Such an undertaking, in Buckland's view, would offer courses of general interest that would engage students from other academic programs. Even so, Buckland remarks that the notion that LIS classes could be "simply interesting" apart from any direct, practical application has not been discussed. Not only would offering such courses would engage the campus community in societally relevant discourse, but it would also, Buckland says, foster interest in LIS itself.

Informing Society

As the refrain goes, information is occupying an increasingly prominent place in modern society. Buckland describes this, rather, as the advent of a "document society."[44] Our intercourse is becoming increasingly document-centric; the rapid creation, dissemination and manipulation of documental data—largely digital—is an everyday reality for both work and leisure. Day takes this further, arguing that the age of documentation has passed, as has that of information, and we now find ourselves in an age of data in which we, ourselves, *are* documents.[45] Such a documental world requires skills in finding, assessing and creating documents (in other words, a kind of information literacy). Such skills have long been important for information professionals, but they are becoming more and more important for people of all walks of life. The now-famous French librarian Suzanne Briet presaged this as early as 1951; she was the first to describe documentation as an important and emerging "cultural technique,"[46] an assertion that saw extensive commentary in an essay supplementing the English translation of her manifesto.[47] Just as the onset of personal computing allowed—or perhaps forced—us all to become typographers, a role that was previously reserved for

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[43] Ibid.

[44] Michael K. Buckland, "Information Schools: A Monk, Library Science, and the Information Age," in *Bibliothekswissenschaft – Quo Vadis?*, ed. Petra Hauke (Munich, Germany: K.G. Saur, 2005), 19–32.

[45] Day, *Indexing It All: The Subject in the Age of Documentation, Information, and Data*.

[46] Suzanne Briet, *What Is Documentation?*, ed. Laurent Martinet, Ronald E. Day, and Hermina G.B. Anghelescu (Lanham, MD: Scarecrow Press, Inc., 2006), 13.

[47] Ronald E. Day, "'A Necessity for Our Time': Documentation as 'Cultural Technique," in *What Is Documentation?*, ed. Ronald E. Day, Laurent Martinet, and Hermina G.B. Anghelescu (Lanham, MD: Scarecrow Press, 2006), 47–63.

studied professionals,[48] advances in technology are similarly requiring us all to become documentalists.

Numerous scholars have further commented upon these developments. Jean–François Rouet presented a detailed account of the skills necessary for functional literacy in our documental world from the perspective of cognitive psychology, though notably he accounts only for textual documents.[49] Mark Deuze identified key practices associated with our emerging new media culture: mass participation in meaning-making, consensual and continual adaptation, and bricolage assembly.[50] These practices have only begun to be investigated in terms of information literacy, and there is certainly much more fruitful research beyond the horizon.[51]

How are people to cultivate these now-necessary skills of documentation? Buckland remarks that universities have historically responded to societal needs for knowledge – indeed, it was, arguably, for this purpose that they were established.[52] Thus, Buckland argues, universities should respond to society's evolving needs in today's digital age. This is not a new idea; indeed, the very existence of information schools and the iSchool consortium speaks to a growing understanding of this reality. As discussed above, the mission of such schools has been to prepare professionals who can handle, design, and manage information in an effective way. However, all professions can now be understood as information professions; information schools, then, should have offerings for all students, not just those enrolled in LIS programs. Given that universities in the United States—and, increasingly, elsewhere—now seem to emphasize professional skill-building over the cultivation of broadmindedness, the direct, practical utility of information and documentation skills should be an alluring prospect.

But even beyond this practical utility, information schools, seen from this vantage, command a platform to encourage students in all programs and with all career goals to engage in self-enriching reflection on the nature of documents, information and data in modern society. However, in Buckland's view, this possibility had not yet been borne out in the mid-1990s, though nascent inroads were being made.[53]

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[48] Amalia E. Gnanadesikan, "The Alphabet Meets the Machine," in *The Writing Revolution: From Cuneiform to the Internet* (Oxford, UK: Wiley-Blackwell, 2008), 249–72.

[49] Jean-François Rouet, *The Skills of Document Use: From Text Comprehension to Web-Based Learning* (Mahwah, NJ: Lawrence Erlbaum, 2006).

[50] Mark Deuze, "Participation, Remediation, Bricolage: Considering Principal Components of a Digital Culture," *The Information Society* 22, no. 2 (2006): 63–75.

[51] June Ahn et al., "Youth Identities as Remixers in an Online Community of Storytellers: Attitudes, Strategies, and Values," *Proceedings of the American Society for Information Science and Technology* 49, no. 1 (January 1, 2012): 1–10.

[52] Buckland, "Information Schools: A Monk, Library Science, and the Information Age."

[53] Buckland, "The 'Liberal Arts' of Library and Information Science and the Research University Environment."

Twenty years have passed since Buckland's writing. The interim has seen the foundation of the iSchools Organization, which according to its charter,

> …takes it as a given that expertise in all forms of information is required for progress in science, business, education, and culture. This expertise must include understanding of the uses and users of information, the nature of information itself, as well as information technologies and their applications.[54]

This assumption underscores the importance and interrelatedness of both the basic and applied sides of LIS. Even so, it doesn't seem to be the case that Buckland's vision of the broad-appeal information school has been borne out.

The question arises, then, of how the nascent inroads of the 90s have developed in the subsequent decades. Tracing these inroads is the objective of the following section.

MINTING THE OBVERSE

Early in the 20th century, Martin Heidegger took it upon himself to explore *being*, a concept that, he argued had been taken for granted by everyone before him, philosopher and physicist alike.[55] Early in his *magnum opus*, Heidegger argues for why the "destruction" of ontology is necessary:

> Fundamental concepts are determinations in which the area of knowledge underlying all the thematic objects of a science attains an understanding that precedes and guides all positive investigation. Accordingly these concepts first receive their genuine evidence and "grounding" only in a correspondingly preliminary research into the area of knowledge itself. But since each of these areas arises from the domain of beings themselves, this preliminary research that creates the fundamental concepts amounts to nothing else than interpreting these beings in terms of the basic constitution of their being. This kind of investigation must precede the positive sciences—and it can do so. The work of Plato and Aristotle is proof of this.[56]

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[54] iSchools Organization, "Charter," *iSchools: Leading and Promoting the Information Field*, November 2014, http://ischools.org/about/charter/.

[55] Martin Heidegger, *Being and Time*, trans. Joan Stambaugh (Albany, NY: State University of New York Press, 1996), https://www.goodreads.com/work/best_book/1309352-sein-und-zeit.

[56] Ibid., 9.

In Heidegger's view, research that does not rest on firm conceptual footing – the kind of self-consistent logic that Graziano championed[57] – cannot advance past a certain point. In this sense, the basic is ontologically primary, whereas the applied is secondary. Returning to the image of the coin, I would suggest, then, that the basic corresponds to the obverse side, whereas the applied corresponds to the reverse.

This means that LIS is in the curious position of having an obverseless reverse. What Buckland called for,[58] in characterizing LIS as a one-sided coin, was the minting of the obverse. In this section, I gauge the progress of that minting by focusing on two areas of the conceptualization of the liberal arts described above: conceptual research and undergraduate education.

Conceptual Research

LIS research is principally disseminated through academic journals. In order to gauge the extent to which LIS discourse is engaging in basic thought, I conducted a content analysis on the papers published in the top LIS journals over the past year to see the extent to which purely conceptual (that is, engagement with self-consistent ideas rather than solely empirical evidence) papers have appeared. I justify looking only to these top journals because the liberal arts side of LIS cannot be said to have fully emerged until it is represented in the discipline's premier journals.

In LIS, there is no widely accepted list of the top journals in the discipline. Citing this gap, Judith Nixon developed a methodology to compile a tiered list of the premier LIS journals.[59] In her rankings, she considered circulation, acceptance rate, expert survey results, impact factors and h-index. She also gave a slight preference to those journals in which faculty at her institution (Purdue University) published, prizing local relevance over generalizability. Still, this preference was slight enough that I deemed her tiered list suitable for my purposes here. Nixon's Tier 1 included (ordered alphabetically) the most important subdiscipline journals of LIS, of which there were 18. Her Tier 2 included 37 journals that were also deemed to be of core quality and central importance. Her Tier 3, finally, included 8 journals that were not peer-reviewed but met her other standards of importance and quality. In my analysis, I considered only Tiers 1 and 2, which were comprised of peer-reviewed journals.

I began my analysis by examining the stated scope of each journal in Tiers 1 and 2 to determine whether the journal's scope included conceptual research papers or

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[57] Graziano, "On a Theory of Documentation."

[58] Buckland, "The 'Liberal Arts' of Library and Information Science and the Research University Environment."

[59] Judith Nixon, "Core Journals in Library and Information Science: Developing a Methodology for Ranking LIS Journals," *Libraries Faculty and Staff Scholarship and Research* 61 (January 1, 2014), http://docs.lib.purdue.edu/lib_fsdocs/61.

solely empirical ones. Four journals, which did not publish any research in 2015 or do not accept unsolicited manuscripts, were excluded from my analysis. In the interest of estimating conservatively, any scope statement that so much as gestured toward the conceptual were included. For instance, the *International Journal of Information Management* welcomes submissions that "make a contribution to advancing information management theory and practice," which was deemed sufficient to count this journal among those accepting conceptual research papers. In this analysis, I found that 27% of the Tier 1 journals accept basic research papers, as do 44% of the Tier 2 journals. These results are provided in Table 1.

Table 1. Journals allowing conceptual articles

	Tier 1	Tier 2
Journals Allowing Conceptual Articles	4	16
Total Journals	15	36
	27%	**44%**

I next conducted a content analysis on the four Tier 1 journals that include conceptual research in their scope in order to determine how much conceptual research was actually published in the last year. These journals were: *The Journal of Academic Librarianship, Journal of Documentation, Journal of Information Science* and *Journal of the Association for Information Science and Technology*. Data was collected on November 4, 2015, and included all the papers published in these four journals from November 5, 2014, to November 4, 2015. I began by excluding editorials and book reviews from the dataset. Next, I examined the titles and abstracts of these papers in order to determine which were conceptual in nature, as opposed to empirical. Of course, this binary view of research publications is rudimentary since, as I described above, theory and practice—the conceptual and the empirical—are often inextricably mixed. In this analysis, I considered as conceptual those papers that did not originally present empirical results, and I distinguished literature reviews from other forms of conceptual papers. The results of my analysis are presented in Table 2. The final row represents the sum of conceptual papers and literature reviews divided by the total papers published in a given journal.

Table 2. Analysis of Tier 1 Journals

	JAL	JDoc	JIS	JASIST
Conceptual Papers	0	16	7	17
Literature Reviews	1	2	1	9
Total Papers	77	63	62	164
	1%	**29%**	**13%**	**16%**

Undergraduate Education

As discussed above, undergraduate education can be seen as an aspect of the liberal arts reach of a discipline. In this section, I review the extent to which LIS departments offer undergraduate education.

Member institutions of the iSchool Organization, of which there are 65 as of November 2015, are understood to be exemplary in terms of LIS education and research.[60] In order to determine the extent to which iSchools are engaging with undergraduates, I counted the iSchools that offer an information-related (as opposed to, for instance, computing) major for undergraduates. Such bachelor's programs were typically named "information science," "information management" or "information systems." Again, I aimed to be conservative in these counts; in practice, a given "information systems" curriculum might be quite estranged from LIS, let alone its budding liberal arts concerns.

These results, organized geographically, are presented in Table 3. Over half the iSchools offer undergraduate LIS majors. A notable case is Australia, in which, though there are only three iSchools, all the iSchools offer undergraduate majors.

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[60] Andrew Dillon, "What It Means to Be an iSchool," *Journal of Education for Library and Information Science* 53, no. 4 (2012): 267–73.

Table 3. Undergraduate majors offered by iSchools

	Asia	Australia	Europe	N. Amer.	Other	All
Major and Minor	-	-	2	8	-	10
Multiple Majors	2	1	8	1	-	12
One Major	3	2	5	8	2	20
Minor Only	-	-	-	1	-	1
Total Schools	6	3	25	30	2	65
	63%	**100%**	**60%**	**60%**	**100%**	**66%**

DISCUSSION

These explorations point to the beginnings of an obverse, but which has not yet overcome significant challenges.

It was found that, still, relatively few journals welcome conceptual research papers. Within those that welcome them, very few of the published papers are actually conceptual in nature. The highest proportion of conceptual work is found in *Journal of Documentation*, in which 29% of the papers published in the surveyed period were conceptual. Though these numbers are certainly greater than zero, they are rather humble. If the liberal arts side of LIS is to enjoy equal footing to the applied side (it would be difficult to attain a fair coin flip from a coin with one side that is basically flat and another side that is mountainously developed), there should be a concerted effort to give further exposure to conceptual research in the discipline. In this respect, the advent of the *Journal of Critical Library and Information Studies* is welcome; by its very nature, it engages with the liberal arts side of LIS. And I would invite researchers across the broad scope of LIS to further explore how they can, through their work, contribute to the minting of the basic side of LIS.

Regarding undergraduate education, it was found that over half of the institutions in the iSchool Organization offer undergraduate degree programs in LIS. This

seems to represent a marked improvement over the situation documented by Buckland.[61] Still, the numbers could and should be higher. To draw a comparison, one would be hard-pressed to find a business department at a research university that does not offer at least one undergraduate business major. I would like to be able to say the same for LIS.

LIS programs can also engage undergraduates through offering minors and general-interest elective courses, which would at once serve society and stimulate interest in LIS as a discipline. Buckland describes student responses to one such course, an introduction to information systems, which was offered at Berkeley as part of an LIS minor.[62] Though students professed not knowing what to expect from such a course, it seems they found it valuable in numerous ways.

The "latent demand" for undergraduate LIS coursework that Buckland cites[63] is surely very real today. And happily, in my survey of iSchool curricula, I found a number of general-interest undergraduate course offerings that speak to the societal relevance of LIS topics:

- "Is Google Making Us Stupid? The Unintended Consequences of Information Technology," Florida State University
- "From James Bond to Zombie Apocalypse and NSA Leaks: Evaluating Information and Intelligence," Indiana University
- "Critique of the Information Age," Syracuse University
- "Women, Gender and Information Technology," University of Maryland, Baltimore County

I include this list not to tout the perspicacity of the named institutions, but with the hope that it will stimulate other institutions to amplify their undergraduate offerings. And, finally, I would encourage LIS programs to explore additional and alternative ways to engage with their undergraduate communities through, for instance, special events in conjunction with the library, or through information-related guest sessions as part of other courses. For example, undergraduates in history might benefit from learning about work that's been done in document theory, and those in biology about classification. The possibilities, I'm sure, are innumerable.

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[61] Buckland, "The 'Liberal Arts' of Library and Information Science and the Research University Environment."

[62] Ibid.

[63] Ibid.

CONCLUSION

LIS has traditionally nurtured only its reverse: its applied, practical and empirical side. In recent years, a focus on the obverse—basic, liberal arts and conceptual—is beginning to emerge. This is welcome for a number of reasons, such as the improvement of practice, the fulfilment of obligations as a research department and service to society. In this paper, I specifically examined the content and curricula of the top LIS journals and institutions in order to shed light on the emergence of the LIS obverse. The findings point to an inchoate obverse, to whose continued minting we should all endeavor to contribute.

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