

Theory- and Practice-Based Approaches to LIS Curricula:

A Literature Review

Adam Worrall

Florida State University

LIS 6289 Education in LIS

4/19/11

Theory- and Practice-Based Approaches to LIS Curricula:

A Literature Review

Of the many tensions present in library and information science (LIS) education, one of the most important and ever-present is the divide between theory-based and practice-based approaches to such education. Despite being an ongoing concern for over a century and a variety of research and opinion-based publications on the topic during the last twenty years, there is little to no known synthesis addressing this key issue in the LIS field. This paper thus presents a thorough review of research on and discussion of the theory-based and practice-based approaches to LIS curriculum and education. This review establishes a comprehensive, broad-
yet-thorough perspective on theory-based and practice-based curricula in LIS, in the hope that further publications—be they presenting research findings or advocating opinions and positions—can build upon the prior work discussed here rather than unnecessarily continuing the tendency towards recurring crises in the field.

Indeed, the debate over theory- and practice-based curricula and education in LIS can be traced (see Wilson & Hermanson, 1998) as far back as the 1880s and Melvil Dewey's establishment of the School of Library Economy at Columbia University. Through the Williamson reports of the early 1920s and debates in the 1960s and 1970s (see e.g. Morehead, 1973; Shera, 1965), the tension has continued to be addressed in more recent discussions in the 1990s (e.g. Bates, 1999; Stieg, 1992) and 2000s (e.g. Blankson-Hemans & Hibberd, 2004; Marouf & ur Rehman, 2007). There are at least three camps that emerge from the ongoing and recurring tension. In the first are those who argue it is better to provide students with a broad-based education that, rather than teaching specific procedures and practices, focuses on the theoretical underpinnings of these so that they can adapt and respond to an ever-changing environment. In the second, we find those who argue practical skills and knowledge will serve

students better in finding employment, believing educational efforts should focus on practical, hands-on experiences that guide students towards fulfilling positions in the field. Finally, a third camp often emerges in reaction to the first two, arguing that both theoretical and practical training and knowledge are required of future library and information professionals, in equal amounts so as to span the divide between the first two approaches to curricula.

Both research- and opinion-based publications have considered this tension, albeit at varying levels of depth. In the former category are found studies such as Blankson-Hemans and Hibberd's (2004), comparing LIS curricula with the practical skills called for in the commercial sector; Callison and Tilley's (2001) examination of the evolution of LIS curricula; and Marouf & ur Rehman's (2007; ur Rehman, 2010) case study assessment of a MLIS program, its curriculum, and changes made to it. Examples in the latter category, advocating for a particular approach with little to no inclusion of research findings, include Bates's (1999) argument that LIS PhD students must be taught both basic and applied research skills; Becker's (2000) presentation of service learning as a useful educational approach for students to gain both theoretical and practical knowledge; Audunson's (2007; Audunson, Nordlie, & Spangen, 2003) view that curricula should conceptualize LIS first and foremost as an interdisciplinary profession; and Ponti's (2008) suggestion that an LIS collaboratory will help bridge the gaps between research, theory, and practice. While many of these base their advocacy in the literature, it is often only a small slice of the overall literature that is considered. Even in articles that present the results of research studies, it is rare to find substantial treatment of literature on the key tension between theory- and practice-based education.

Treatment is given—to varying extents—to other tensions and divisions, as might be expected given the stakeholders involved. Thus one finds that the theory- vs. practice-based LIS

curricula debate parallels those between practitioners and educators (see e.g. Dillon & Norris, 2005; Moran, 2001); practitioners and researchers (see e.g. Booth, 2003; Ponti, 2008); and believers in LIS as a single discipline, multidisciplinary profession, and vocation (see e.g. Audunson, 2007; Audunson et al., 2003; Stieg, 1992). While it must, therefore, be considered in light of these other tensions, the tension between theory-based and practice-based LIS curricula is a separate topic deserving careful and thorough review.

Unfortunately, there is little to no known recent synthesis that directly addresses theory- and practice-based LIS curricula, especially in how they relate to each other on a continuum of approaches and in if and how the divide between them—if it indeed exists—can be spanned. Broader reviews of LIS education in general have discussed the topic, and the most recent (Mezick & Koenig, 2009) did include a review of curricula-based research and advocacy (pp. 600-603), which has proven useful in preparing this review. However, Mezick and Koenig did not cover the theory- or practice-based approaches or the continuum between them in great detail, glossing over this key tension. Similarly, while Logan and Hsieh-Yee's (2001) earlier review included substantial discussion of professional competencies (pp. 439-442) and curriculum (pp. 446-449), again the authors did not elaborate much on the tension between theory- and practice-based curricula nor the relation of competencies to this tension. This review thus fills an important gap by providing a focused review of research and discussion on the theory- and practice-based approaches to LIS curricula, the divide and continuum between them, and how LIS educators might span and integrate these approaches.

The chosen focus here is on the last twenty years of publications. The closing of numerous library schools in the late 1980s and early 1990s and new American Library Association (ALA) Standards for Accreditation taking effect in 1992 serve as significant events

in the timeline and are natural scope limits. While the tension between theory- and practice-based LIS curricula is certainly present before them, there are some differences found in more recent literature. What has come before is certainly important, however, and so presented first is a brief discussion of the historical background of theory- and practice-based LIS curricula. The discussion of the literature since 1991 then follows, grouped by key themes. These include theory-based curricula, practice-based curricula, and the divide between these; there is also a brief discussion of related tensions and trends. Finally, the last portion of the review presents literature focusing on spanning the two approaches and the continuum and divide between them, mentioning some proposed solutions and suggestions to reduce the tension.

Historical Background

As noted by Wilson and Hermanson (1998, p. 469), the tension between theory-based and practice-based approaches to LIS education and curricula goes at least as far back as Dewey's creation of the first library school in New York City at Columbia (later moving to Albany) in 1887. Dewey's initial proposal was for prospective librarians to go through two years of practical experience, bookended at each end by three months of instruction at the library school. His approach thus combined both theory and practice, albeit with a clear and heavy emphasis on the latter; Wilson and Hermanson termed his approach "vocationally based education" (p. 470). "The proper balance of" theory and practice, they accurately stated, "has been a debated issue in library education ever since" (p. 469).

The 1920s brought significant changes to library education, not least due to the Williamson reports. These established accreditation of library schools by the ALA, greater separation between clerical and professional training, and that graduate-level university education was the appropriate training environment. In doing so, the Williamson reports

contributed to a change in LIS curricula from vocational practice to a more theoretical basis. The founding of the University of Chicago's Graduate Library School in 1926, with its thorough grounding in theoretical academic work and multidisciplinary, further contributed to the debate and to the trend towards theory-based curricula (Wilson & Hermanson, 1998).

Emphasis in library education shifted to other trends and tensions during the 1930s to the 1950s (Wilson & Hermanson, 1998); nevertheless, both theoretical and practical training continued, albeit with a continuing shift towards theory-based curricula (Grogan, 1983/2007). Discussion particularly continued on the role of practical experiences in library education¹.

Shera's Push for Theory

The tension reemerged around 1960 with the growth of information science and the importance to libraries of technology and automation. Jesse Shera, a major proponent of the latter, also became interested in issues surrounding the education of librarians. While brief, his four-page discussion of "Theory and Technique in Library Education" (Shera, 1965), first published in *Library Journal* in 1960, presented a strong and persuasive argument for theory-based curricula in LIS education. Shera's experience in the humanities and education at the University of Chicago's Graduate Library School ("Jesse Hawk Shera," 1965) is evident in his views, particularly his argument that library schools have to "reconcile, within [their] instructional program, the pragmatism of a John Dewey with the self-sufficient search for intellectual excellence of a Cardinal Newman" (p. 174). While certainly not ignoring practical and professional skills, Shera believed "the tidal wave of vocationalism" was a problem librarians and library educators had to face (p. 176). Unless they understood "the philosophical implications of their impression," the theory behind their practice, they would be little more than menial, unskilled workers (p. 176). Summarizing his view, Shera wrote that "the primary aim of

education for librarianship should be the training of the intellect in matters pertaining to human knowledge” (p. 177), thus making a clear and succinct argument for a theory-based approach to LIS education.

Shera’s most in-depth treatise on librarian education came in his book “The Foundations of Education for Librarianship” (Shera, 1972), wherein he presented libraries, librarians, and library science in the context of society and a social epistemology. His basis and grounding of LIS education in such theoretical underpinnings clearly echoes his earlier short article. While reviewing his entire book is beyond the scope of this paper, his chapter on “the professional program” (pp. 340-397) elaborates further his views and position within the theory vs. practice debate: professional schools for librarians should “not [be] the apprentice training of a trial-and-error craft” (p. 347); knowing “the nature of librarianship ... [is] the first responsibility of a school of library science” (pp. 350-351); such a “theoretical foundation” must come from the field of librarianship itself, not outside it (p. 354); and LIS education should “represent a well-developed theory of the social function of the library ... directed toward the training of the intellect” (p. 362). Shera suggested that practice only be 10% of the curriculum; theory was to specifically take twice that percentage but also to pervade the entire curriculum. Practitioners and practice-leaning educators could certainly adjust his proposal to include more practical opportunities for students, but Shera’s aim is clear: LIS curricula should be based in theory, rather than practical matters.

Opposing and More Moderate Views

Others writing in the 1970s did not necessarily share Shera’s theory-centric view. Morehead (1973) argued particularly for “library-centered library education” (p. 124), believing a combination of seminars and practical field work in the library school’s own library was most

appropriate. Since “librarians will be working in libraries,” Morehead argued, “they must master certain tasks that can be learned only through” practical experience in such an environment (p. 126). His later book (Morehead, 1980) expanded upon his earlier article, arguing for “a teaching-learning strategy that emphasizes student-centered, heuristic activity” (p. 7), an approach that would integrate theory and practice together—with emphasis clearly on the latter—in the context of library-centered education and the three goals of “freedom, relevance, [and] discovery” (p. 120). It is worth noting that in both cases Morehead’s arguments rely on a taxonomy of modes of instruction for library education, originally developed by Reece, within which today’s educational and instructional norms do not fit quite as neatly as the norms of the 1970s did.

Bayless (1977) expressed a view closer to Shera’s than Morehead’s, but overall more moderate, by considering the master’s degree and its theoretical training as a key differentiator between an experienced paraprofessional and a professional librarian. Bayless argued strongly that librarianship is a professional, “intellectual discipline,” for which the necessary education must help develop the “whole body of knowledge which must be grasped in order to best perform [the practical] skills” needed in librarianship (p. 1717).

The tension between theory- and practice-based LIS education and curricula was thus not resolved even 90 years after Dewey. In particular, with the closing of library schools and greater inclusion of information technology in the LIS profession in the late 1980s and early 1990s, the debate would continue. As previously noted, the literature post-1991 breaks down into themes, the first of which is that focusing on theory-based curricula.

Theory-Based Curricula

In the context of programs broadening their appeal; increasing interdisciplinarity; and incorporating technology, specializations, and distance learning (Logan & Hsieh-Yee, 2001, pp.

446-448), a segment of the literature focused on the continuation of theory-based LIS curricula such as that advocated for by Shera (1965, 1972). As noted by Mezick and Koenig (2009, p. 601), one of the largest studies of LIS education in quite some time was the Kellogg-ALISE Information Professions and Education Renewal (KALIPER) project. Despite its importance, citations to publications reporting its results have unfortunately not been many, totaling less than 100 as of April 2011 (per Google Scholar). Pettigrew and Durrance's (2001) article in the *Journal of Education for Library and Information Science (JELIS)* provides an excellent summary of the findings. In evidence of the advantages of theory-based curricula were statements by participants—deans, directors, and faculty from LIS schools—that “professionals must be prepared for the ‘big picture’” (p. 174) and that “graduates’ broad-based problem solving abilities ... [make] employers from nontraditional areas value [them]” (p. 175). The clear emergence of a user-centered perspective in LIS, also found by Pettigrew, Durrance, and their colleagues, contributed a solid base for theory-based curricula that educated professionals able to apply their knowledge to a wide range of contexts and situations.

Reporting in greater depth on a portion of the KALIPER findings, Marshall, Wilson, Marshall, and Harris (2001) noted that “librarianship [had] moved from being the embodiment of the field to a specialization within it” (p. 208); a broader, more theoretical basis for the information professions had taken hold in curricula. Some schools, in bids to increase interdisciplinarity, had hired or planned to hire faculty to joint appointments; curricula based around common theoretical and academic interests, rather than practical LIS skills, was the result. Marshall and colleagues also stressed the many dissimilarities between programs who had reacted differently to the trends and challenges present. Nevertheless, the overall trend was towards more and broader theory, rather than more and narrower practice.

Around the same time, Callison and Tilley (2001) conducted a broad, longitudinal analysis of LIS curriculum changes from 1988 to 1998, basing it on job announcements, ALISE research and teaching interest surveys, and new course titles. The latter data in particular sheds light on the debate between theory- and practice-based education in LIS programs during the 1990s. Callison and Tilley found courses in the foundations of LIS became increasingly offered as the decade progressed, from 6% of new courses offered in 1990-1992 to 13% in 1996-1998. More generally, their findings echoed the trends found in the KALIPER project towards broader coursework and curricula, stressing a more theoretical “information science” base than a base in traditional “librarian” skills.

Markey’s (2004) analysis of educational trends in LIS curricula is another important study, the findings following up nicely on the KALIPER project and Callison and Tilley’s longitudinal analysis. She collected information on the programs offered by the 56 member schools of the Association for Library and Information Science Education (ALISE), visiting their Web sites in both 2000 and 2002. Her findings echoed others of a broad-based curriculum, with the data indicating inclusion of core coursework on the theoretical and conceptual foundations of the LIS field was common. Courses focused around practical experience and application, although present, were not as popular in the core. Markey also argued for further increases in interdisciplinary programs and expanding into areas uncovered by current LIS curricula, rather than remaining entrenched in the user-oriented perspective reported in the KALIPER project. Such further expansion would result in deepening the theory-based approach to LIS education, rather than encouraging an in-depth focus on practical skills. Nevertheless, Markey did not leave practice out of her discussion, as will be seen below.

At the same time the KALIPER results were being reported, Moran (2001) was making similar arguments to those of Bayless (1977) 24 years ago, even choosing the same publication venue (*Library Journal*). Given the changes in the scope of the field—as found in the KALIPER project and elsewhere—Moran (2001) correctly noted that students would need more technology coursework. While balancing these additions with existing skill-based courses, programs would inevitably lean towards “basic principles, theory, and foundations,” an approach she felt “must be the focus” (p. 54). To remain a professional, academic discipline, Moran argued, “LIS schools ... must emphasize education, not training” (p. 54). While believing that educators and practitioners had to connect and work together, she felt that the place and success of LIS in the academy relied upon it being a theory-based profession, rather than holding to the practice-first attitude that had resulted in library school closures and a lack of appreciation of their value to universities and society. Moran’s olive branch to practitioners and attempt to address their concerns does show, however, that her stance was softer than that of Shera a generation ago; she clearly believed there were ways to bring theory- and practice-based LIS education together, a theme that will be returned to later.

Practice-Based Curricula

The rise of technology and resulting broadening of LIS curricula, leading to the concerns Moran (2001) attempted to address, also led to many studies of how curricula relates to the needs of the information professions. There has been particular emphasis on non-librarian and private sector jobs, and whether curricula satisfy the skills and competencies needed for these kinds of employment. Blankson-Hemans and Hibberd’s (2004) survey of LIS faculty and practitioners in multiple countries found that, while faculty did understand the trends and issues present in the commercial sector, curricula did not match with practitioners’ expectations of the skills required

to be employed in that sector. The practitioners focused their responses on broad-based practical skills that they felt educators needed to guide students in learning. They recommended additional business and management-oriented courses, along with more entrepreneurial training, as useful additions to LIS curricula to encourage the learning of transferrable, practical skills by students. Both the practitioners they surveyed and Blankson-Hemans and Hibberd themselves thus disagreed with Moran (2001) and Bayless's (1977) beliefs that LIS education should be based around theoretical education. Instead, most important were practical skills-based training for business and management settings.

Marouf and ur Rehman (2007; ur Rehman, 2010) performed a similar study, but with the more express intent of redesigning the LIS curriculum at Kuwait University to better address the "changing market" (ur Rehman, 2010, p. 298). Employing a survey of alumni and focus groups with employers, information professionals, faculty, and students, they found most held the degree program in high regard, but felt it "had little connection with the market" in many cases (p. 300). Skills and competencies identified in the focus groups were practical in focus, considering the information technology, business, and LIS skills graduates required; suggestions were also made for additional fieldwork, training programs, and other practical experience for students (Marouf & ur Rehman, 2007). Suggestions included a variety of tracks and specializations, most being areas in demand in the commercial sector rather than in libraries. As a result of the study and other discussions at the university, the curriculum was redesigned with (a) a new name, "information management" (ur Rehman, 2010, p. 303); (b) three new specializations covering librarianship, information and knowledge management, and information technology; and (c) the choice for students between a practice-based project or research-based thesis at the conclusion of the degree. While their articles and findings lack both in specifics of

the new curriculum design and in broad applicability to LIS schools around the world, Marouf and ur Rehman's study and the resulting curriculum redesign are indicative of practitioners' desire for practice-based LIS curricula and of how LIS schools might implement such an approach. Their findings strongly echo those of Blankson-Hemans and Hibberd (2004), while one cannot help but conclude that Shera (1965, 1972) would strongly disagree with many of the curriculum changes made.

A project to revise the LIS curriculum at the University of Zululand in South Africa, reported by Ocholla (2001), provides a less extreme example of practice-based LIS education. Nevertheless, the findings of content analysis of job ads, a survey, and interviews of alumni and their employers conducted by Ocholla produced broadly similar findings to those of Blankson-Hemans and Hibberd (2004) and Marouf and ur Rehman (2007). Graduates and their education were highly regarded, but found to be ill prepared in practical skills, particularly those of a business, managerial, or technological nature (Ocholla, 2001). Resulting curriculum changes included (a) better integration of library and information science coursework; (b) introduction of further required and elective courses, especially in technology; (c) the lengthening of required fieldwork, emphasizing practical skills; and (d) encouragement of student-centered, outcome-based education throughout the program. Unlike the Kuwait University curriculum changes, the University of Zululand primarily served "the public sector ... in particular the public and academic libraries" (p. 166); hence there were no changes to the degree name or incorporation of information and knowledge management directly into the curriculum. Ocholla's study and report shows that the desire for a practice-based curriculum is present in both traditional and non-traditional LIS environments. Lacking in all three studies, however, is any significant follow-up to see if curriculum changes improve students' success in their employment.

Markey's (2004) study, while focused on an increasing need for broad theory-based curricula, found core curricula in many LIS programs to include practice-based courses in library management and reference services and sources. In addition, the incorporation of internships, practicums, and other professional experience into curricula was increasing over time, albeit such experiences were still nowhere near as popular as many other core areas. Despite her overall view, Markey did consider it important to remember that practice surrounds the curriculum and that students will apply what they learn in the specific contexts they are employed in, showing the need for some level of practice-based education in LIS programs. Markey's points will be returned to later in this paper.

Like Markey, Raju (2003) also examined core curricula in LIS, reviewing the literature and surveying alumni of so-termed "first-level" LIS programs in South Africa and senior management of libraries and information services. As part of her dissertation research, both the literature and her survey results indicated "certain knowledge and skill components" belonged in the core (p. 229); however, the specific core courses were more difficult to determine. The majority of the skills and competencies identified were of a practical nature: material selection, management and human resources skills, computer programming and database skills, and fieldwork. Very little of the core is explicitly theoretical; "philosophy of [LIS]" and "organizational behaviour" are the only two suggested knowledge areas that appear to be so (p. 235). Unfortunately, Raju's own analysis is mostly limited to noting that the "core is a continuously evolving one" (p. 236), a true statement but not one that greatly aids curriculum design. Nevertheless, her findings analyzed in the context of theory- and practice-based curricula clearly echo those of others discussed above, particularly Ocholla's (2001) from the same country.

Finally, some of the findings of the KALIPER project also showed that schools were offering practice-based education in LIS. Marshall et al. (2001) reported that courses and continuing education certificates in technology were one of the more popular examples of this; many courses focused on specialized software skills or gaining new skills and knowledge required as information technology becomes ever more present in information organizations. The trend towards specialization they found also indicated a push towards practice-based curricula, with many programs restricting the courses allowed for a given specialization to ensure students obtained the required skills and knowledge to be employed in their chosen area. The trends identified by Marshall et al. thus may inevitably lead to students with well-defined and relatively narrow interests taking a greater number of practice-based courses, even as an increased emphasis is placed—as noted above—on the theoretical underpinnings of LIS as broadly defined.

The Divide

Clearly there is still tension, and a troubling divide, between the theory- and practice-based approaches to LIS education. Discussion of this divide, while implicit in much of the literature, was given special treatment by at least four sets of authors.

The first of these, Stieg (1992), straddled the period of the closing of library schools; indeed her book's title and topic refer to the changes and challenges faced in the context of these closings and the encroachment of information science and information technology. Stieg evidenced a more balanced tone and view of the divide than many of the authors discussed so far. She said that “both, after all, are necessary to the well-prepared professional,” but noted different LIS schools will find their niche in different places on the continuum between them (p. 7). Different eras will have different biases towards one end of the continuum over another, Stieg

feeling the early 1990s were predisposed to practice over theory. The literature reviewed in this paper implies recently the tone has been slightly more mixed, albeit many employers are still significantly predisposed to practice-based curricula. Whether the views of employers are important is a topic Stieg treats with much disdain; she compared them to “museum goers who don’t know art but do know what they like” (p. 42) and argued they take too narrow a view of LIS education. Attempting to pull some conclusions out of a muddy picture, Stieg argued that LIS schools—or even educational institutions in general—cannot expect to prepare library and information professionals for every eventuality, especially given their interests may change over time. Specialization would help alleviate the tension some, but by no means completely; she believed consensus between employers, practitioners, and academics was ultimately required—like Moran (2001) would later argue—but seemed to understand the difficulty in reaching it and thus in bridging the divide.

Bates (1999) attacked the divide from a different perspective, that of LIS doctoral programs and their graduates. In a lecture given at Florida State University, she addressed the role of the PhD-holding researcher in the LIS professional field, a population which “at least some library practitioners ... [feel] are foggy-headed ... hopelessly impractical, [and] incapable of preparing ... students for the real world of practice” (para. 2). As an academic, she naturally defended doctoral-level research, calling it the “seed-bed” for the profession (para. 10). She noted that even the most practical tasks—such as her example of the design of information retrieval systems—require a broader, theoretical base of knowledge to fully understand the contexts of their use; services and systems must take into account users’ characteristics and needs and consider how multiple contexts relate to each other. In effect, Bates argued, applied practice and basic research are inseparable: “results of basic research must be drawn upon to

create optimal information systems” (para. 38). Thus, while not directly arguing for a particular approach to curricula, Bates clearly believed that the divide between theory and practice was actually relatively weak, and that doctoral students and faculty would be able to bridge it with appropriate, practitioner-relevant research. Much like Stieg, she acknowledged the tension and the divide but believed it could be spanned.

Blankson-Hemans and Hibberd’s (2004) survey of faculty and practitioners found practical management skills to be most important, as noted earlier. However, hiding in their recommendations are some important notes on the divide that separate their work somewhat from the rest of the practice-based literature. LIS schools, they felt, must “adapt or die” (p. 80), echoing the language used by Moran (2001) in her exhortations that LIS had to adapt and broaden its educational focus after the library school closings. Feeling the divide as it existed threatened LIS education, Blankson-Hemans and Hibberd (2004) called for a shift “towards a little less” rigidity in traditional skills (p. 280) and a more flexible, “business focus” to education (p. 279). In so doing, they argued for what one might term “broad-based practice”; not practical skills in the vein of those suggested by Marouf and ur Rehman’s (2007) or Raju’s (2003) participants, but knowledge that could be broadly applied in multiple contexts. While certainly not advocating a theory-based curriculum for LIS education, Blankson-Hemans and Hibberd thus addressed the divide in such a way as to promote educational strategies that work towards narrowing it, rather than encouraging deep practice-based specialization by students.

Finally, Wilson and Hermanson (1998), in their history of the education of library practitioners, noted—drawing upon the work of Rothstein and Houle—the bane of many an LIS school dean or director: alumni are never happy with their experience as students. Showing great insight, they observed that the reasons for this differ throughout the professional career of

alumni. When they first graduate, they wish their education had been based more in practice; then later in theory; then later still in administration and management; and then even later still in an increasingly broader social, historical, scientific, and humanistic context. Of course, the final step here would be of little surprise to Shera (1972), given his argument for such a societal context-based view of theory-based LIS curricula. LIS schools clearly cannot, however, simply focus on one of these phases and face a major challenge in addressing all of them. Wilson and Hermanson indirectly made an especially potent argument for narrowing the divide and making it as easy as possible for students to cross between theoretical knowledge and practical application.

Related Tensions and Trends

How that is done, of course, is the biggest challenge, one that will be reviewed momentarily. First, however, it is important to note the context, in the form of related tensions and trends that impact upon the divide and on any attempt to span it.

The first, which overhangs all of LIS education as presently considered, is that between librarianship and information science. While a complete review—or even a list—of publications in this area is beyond the scope of this paper, Stieg (1992) in particular provided extensive treatment of this tension. In addition, Rayward (1983), Shera (1983), and Gardner (1987) presented particularly worthwhile and interesting views on the relationship between librarianship and information science and its connection to the tension between theory and practice in the curricula of these fields. It is evident that much of librarianship's history is practice first, applied research second, and theoretical research third, with the focus clearly on being a service profession. On the other hand, information science has been quicker to embrace research in general and theoretical research in particular, especially more recently (see e.g. Pettigrew &

McKechnie, 2001); originally it was also somewhat less of a service-oriented profession, although that has changed in more recent decades. As a result—and as seen in much of the literature discussed so far—the theory- vs. practice-based curricula tension often tends to fall along the lines of information scientists cast as theoreticians and librarians cast as practitioners. Of course, there are librarians on the theory side and information scientists on the practice side, and—most importantly—plenty of both in intermediate positions along the continuum.

Another important tension is the question of whether LIS is a profession, discipline, vocation, or something else. Audunson (2007; Audunson et al., 2003) has given this topic much thought and come down in favor of a pluralistic approach where coexistence is “fruitful” (Audunson, 2007, p. 106), albeit with a slight preference for labeling the field as an interdisciplinary profession first and foremost. As hinted at previously, this tension also goes all the way back to Dewey—a vocationalist (Wilson & Hermanson, 1998)—and continues to the present day. Much like theory vs. practice is not an either-or proposition, profession vs. discipline is also a continuum. Its impact on theory-based and practice-based LIS education is as a confounding factor. While LIS as a vocation clearly implies a need for practice-based curricula, both professions and disciplines need both theory and practice, albeit perhaps in differing amounts; many disciplines—especially those in the sciences—tend have a stronger theoretical grounding. One’s place along one of the continua, in one of the debates, will thus influence—but by no means predict—one’s place in the other.

Complicating both of the above are more general disagreements between practitioners—generally of the traditional librarian persuasion—and academics, often positioned by the former as information scientists. In reality, many of these disagreements are primarily turf wars, stemming from the remaining tensions between practice-oriented librarianship and research-

oriented (library and) information science (Dillon & Norris, 2005). In relation to LIS curricula, there are not even that many differences between the two groups; Dillon and Norris rightly pointed out that the core courses practitioners often call for being included in LIS schools' programs are those found to exist in studies such as Callison and Tilley's (2001) and Markey's (2004). Of course, the perspective taken in these courses and the curriculum as a whole—on all the tensions noted here but particularly the theory vs. practice continuum—impacts and is mutually impacted by these disagreements, petty as they may be in the eyes of many.

Trends in curricula in general are also important to note; many studies have examined these, including a few already mentioned (Callison & Tilley, 2001; Markey, 2004; Marshall et al., 2001; Pettigrew & Durrance, 2001). A thorough exploration of all curricula trends in LIS is beyond the scope of this paper, but the interested reader is encouraged to review the studies above and the sections on curricula in broader literature reviews of LIS education (Logan & Hsieh-Yee, 2001, pp. 446-449; Mezick & Koenig, 2009, pp. 600-603) for more details. The context of any attempts to span the divide between theory- and practice-based education in LIS must clearly include other educational trends, particularly those in the very curricula which require adjustment.

Spanning Theory and Practice

An approach to LIS curricula that spans theory and practice seems appropriate given the treatments of the divide by Stieg (1992), Bates (1999), Blankson-Hemans and Hibberd (2004), and Wilson and Hermanson (1998), among others. It also seems a natural solution to the clear differences in opinion present in the field. Further evidence of the need for spanning the divide and suggestions for ways to go about it, some more general and some more specific, come from

multiple sources in the literature. There are also two broader educational strategies discussed that can help span the divide

General Suggestions

Roggema-van Heusden (2004) presented a framework for LIS curricula that had been developed at the LIS school in Groningen in the Netherlands. It was based on the idea of a competence-oriented curriculum, one that focused less on “factual” knowledge acquisition and more on broad-based problem solving and life-long learning abilities (p. 98). In particular, the competencies included came from four areas relating to information and knowledge’s (a) production and “exploitation” (p. 100); (b) anticipation, seeking, and absorption; (c) creation and generation; and (d) learning and spread. The competencies relied on practical skills, theoretical concepts, broad expertise, and specific behavior, bringing together both theory- and practice-based curricula elements into one framework to respond to the needs of professionals and employers. While Roggema-van Heusden’s framework thus certainly holds promise for spanning the divide, her article lacks in specific suggestions as to how it can be implemented by LIS programs. While promising in her conclusion that “the next stage [would be] to describe how it is used” (p. 102), such a presentation and analysis does not appear to have occurred. As such, her presentation of the framework can only be seen as a general suggestion.

Haddow and Klobas’s (2004) article, although focusing on the communication of research to practitioners, identified many gaps in such communication that relate to the tension and divide. Many of these gaps, particularly those in knowledge and education, impact upon LIS schools and how they train future practitioners and information professionals. In particular, they noted that research informs practice only through the mediating effects “of education, publication, consulting, and in-house research” (p. 36), channels that are unfortunately little-used

based on the literature. Haddow and Klobas, while recommending further research on the matter, tentatively suggested that master's and continuing education curricula based in practice, but that incorporated and referred to research results, would help to close the gap through increased use of the education channel. Using this approach to incorporate research that is specifically theoretical into master's programs and continuing education would be a natural extension, and lines up nicely with Bates's (1999) call for doctoral students and faculty to conduct practitioner-relevant theoretical research. The tentative and general nature of the suggestion does somewhat limit its direct applicability to curricula, however.

As previously noted, Moran (2001) also argued for bridging the divide, noting that “the two fields”—educators and practitioners—“are ... joined in a common purpose—to ensure that the libraries of today and tomorrow are the best that can be provided” (p. 55). She specifically reasoned that those on both sides “who are willing to alter their positions and to change for the common good” should come together and “repair the rift,” but was short on specific goals as to how that might be accomplished beyond interaction and discussion via professional organizations (p. 55). In the same year, Pettigrew and Durrance's (2001) presentation of the KALIPER project results noted that faculty had “raised questions about ... whether LIS is a profession or a discipline, and questioned if there is a formula for easily spanning both” (p. 180). These concerns echo those raised later in the decade by Audunson and colleagues (Audunson, 2007; Audunson et al., 2003) as well as those previously expressed by Bayless (1977) and Stieg (1992); in particular Audunson argued strongly for a multiplicity of views that would necessarily have to be spanned. The trends identified in KALIPER help provide a possible way forward for LIS schools to “repair the rift”—as Moran (2001, p. 55) termed it—most notably in shaping a distinct core, developing specializations, and offering programs and certifications in broader

fields and in alliance with other departments on campus. While still useful suggestions, these are, again, lacking some in specificity.

In a book discussing the very problem of spanning between theory and practice in LIS, Crowley (2005) argued that theories must be “useful ... mental constructions that reflect, to some degree, ‘how things work’ in real-world contexts” (p. 7). He believed in approaching the tension from the perspective of cultural pragmatism, judging theories—alongside models, hypotheses, and the like—in terms of their applicability in “defining and solving relevant problems” in given contexts (p. 7). Crowley believed the “academic norms for ‘good’ research” were not positioned in such a way to “produce findings useful to practitioners” (p. 13), and drew from John Stewart Mill to come up with five maxims for developing useful theory: (a) understand the “‘commonsense’ perceptions [that] often determine [theory’s] acceptability” (p. 15); (b) emphasize the effectiveness of theory rather than how it might improve our understanding; (c) realize that purely academic theory will face more limited recognition when placed against experience-based theory; (d) ensure theories are stated in common practitioner-level language, rather than academic jargon; and (e) accept the role of values and religion in the modern world. These maxims are useful as a general guide for bridging the divide, but—as with the suggestions of Roggema-van Heusden, Haddow and Klobas, and Moran, are more general than specific.

Specific Suggestions

In an attempt to provide such specificity, Crowley (2005) further argued for the building of common languages to facilitate collaboration between academics and practitioners, particularly through the sharing of tacit knowledge by practitioners and its conversion to explicit knowledge in the form of theories. His suggestions for methods to accomplish this were (a) “the

analysis of practitioner accounts in a professional literature” (p. 111); (b) discussion of existing tacit knowledge theories with practitioners to see if they stick in context; and (c) interviews and similar anthropological and sociological study of practitioners, following a qualitative approach. This tacit knowledge approach to grounding theories in experience and practice is a useful strategy that could very well help bridge the divide between theory- and practice-based curricula, in particular in bringing the former closer to the latter. It also is a little more directly applicable and specific for the design of curricula and coursework than Crowley’s earlier suggestions or those of Roggema-van Heusden, Moran, and others mentioned above. It is unfortunate, however, that it takes Crowley (2005) over 100 pages to develop his argument—much of it taken up with philosophical discussions that could very well go over the heads of some academics, not to mention most practitioners—and that his suggestions do not really live up to the promise in his book’s title of “spanning the theory-practice divide.”

Bates (1999) did offer one specific suggestion that could bridge the gap. Students and faculty, she argued, should “select research questions that may contribute—if not this century then the next—to the practice of that socially useful activity that is a profession” (para. 46). Bates thus put the burden on the researcher and theoretician, rather than on the practitioner community, to span the divide existing between them. The incorporation of basic and applied research on these questions into the curricula of LIS programs would help tie together theory- and practice-based coursework, allowing students to bridge the gap in their own minds as well.

Markey’s (2004) analysis of trends in LIS curricula, like Roggema-van Heusden’s article, provided a potentially useful framework for spanning the divide. She developed what might rightly be termed a model (p. 328) of the curriculum, beginning with an inner circle representing the life cycle of information. This circle included the phases of creation, collection

development, organization, retrieval, use, evaluation, and preservation, all areas within LIS with much theoretical grounding behind them. A middle circle, surrounding the inner, consisted of “important factors in terms of disciplines, contexts, and tools” that play a role in the curriculum (p. 327). These included factors such as research, standards, ethics, technology, economics, policy, law, management, and information environments. In effect, these take the basic research and theorizing of the inner circle and apply it within a given context. Markey argued that schools should offer specializations, certifications, dual-degree programs, and/or new masters-level programs to address the great educational depth in many of these areas. The outermost circle consisted of practical experience, in the form of internships, practicums, practical engagement, and professional practice in general. Markey continued to discuss the coursework reflected in her analysis for each phase represented in the inner circle (pp. 330-332), glossing over to an extent the potential applicability of her model for spanning the divide between theory- and practice-based education in LIS. Nevertheless, Markey’s model is both more broadly and more directly applicable than the framework developed by Roggema-van Heusden (2004), especially given her specific suggestions regarding the middle circle. As a useful framework for aiding both educators and practitioners in thinking how these two approaches can fit together within one curriculum, Markey’s model has great potential and deserves a closer look by all involved.

Although not originally intended for direct application in LIS curricula, collaboratories (see e.g. Finholt, 2002; Sonnenwald, 2007) have recently been seen as having potential for bridging the gap between theory and practice. Ponti (2008), in particular, sees collaboratories as virtual learning communities—one of seven types of collaboratories identified by Bos et al. (2007)—that can help support collaboration between researchers developing theories and practitioners who want to improve practice. Drawing on Haddow and Klobas’s (2004)

conclusions that practitioners should become more involved in research and research and theory should be better disseminated to practice, Ponti (2008) argued that an LIS collaboratory can help both of these come about, serving as a boundary object (c.f. Star & Griesemer, 1989) that translates between academics and practitioners and their different levels of knowledge. Such a collaboratory, she felt, would “provide the opportunity for [collaborative] projects involving practitioners, students, and researchers” (p. 269), encourage collaborative practice-based projects (with similarities to evidence-based librarianship, discussed below, present), provide a “working space in which research and learning intersect” (p. 270), and support networking between practitioners and researchers, reducing the gaps Haddow and Klobas (2004) discussed.

Implementing such an LIS collaboratory, of course, faces many challenges, which Ponti (2008) did briefly address in her article. Such challenges were also discussed more by Ponti and her colleagues in a later article (Sonnenwald, Lassi, Olson, Ponti, & Axelsson, 2009), alongside similar projects intended to share data collection instruments and support the selection of library management systems. They were “conducting a qualitative study of three collaborative projects” between practitioners and researchers (p. 193), determining what socio-technical influences facilitated or hindered such collaboration and how such collaborations form and continue in context. In two of the cases the projects remained “emergent groups,” without external funding, but this provided necessary flexibility for the practitioners involved (p. 194). In the third case, the project was more institutionalized and funding changes caused major social disruptions in the team at work. All three cases had a “gift culture”—of volunteerism—in common; the rewards were not monetary, but of service to the LIS profession and field (p. 194). Ponti and her colleagues suggested this should be used as an advantage to encourage emergent, volunteer-based collaboration that encourages flexible professional development and service that brings

theory and practice, researchers and professionals, together in a common cause. While in many ways a new and unique strategy, the use of collaboratories to bridge the divide thus echoes the arguments of Stieg (1992) and Moran (2001), and could be seen as a specific way of achieving the goals they proposed.

Educational Strategies

Two major educational strategies have also emerged that promise to help span the divide between theory- and practice-based LIS curricula. The first of these, service learning, allows for curricula and coursework where students “not only [gain] an understanding of the traditions, theory, and research underpinning LIS, but also ... the experiences and skills that will prepare them to assume their role as the practitioners of tomorrow” (Becker, 2000, p. 285). While a thorough treatment of service learning is beyond the scope of this paper, its applicability in both short-term and long-term LIS educational opportunities that bridge theory and practice is clearly evident. Becker provided an example of each of these: a two-day weeding project at a school library in Brooklyn, New York; and a five-week advanced reference course taught at St. John’s University in Queens, New York. In both cases the pedagogy incorporated both theory and practice, and students grasped the connections between the two and developed a greater understanding of the issues at play. Students in the advanced reference course in particular completed an impressive, workable plan for a new information service for supporting Catholic school libraries in Brooklyn and Queens, a project that drew attention in the broader university and nationally in service learning literature.

Becker’s examples are by no means the only successful ones. A book edited by Roy, Jensen, and Meyers (2009) discussed a number of service learning projects and implementations in school library media practicums, serving Latino youth and underserved populations, cultural

heritage, the Internet Public Library, community engagement, and virtual worlds, as well as with international students. In the preface to the book, Roy noted the ongoing tensions—“since the inception of formalized LIS education”—between theory and practice, arguing that “service learning serves as one bridge, connecting students with” learning, faculty with “today’s work environments,” and librarians with those preparing “new librarians” (p. viii). The book also presented the place that service learning is finding in LIS curricula, which is as varied as the projects that can be accomplished using it: required or optional coursework, for credit or simply as service, self-directed or supervised by an instructor, on-site or off-site (pp. xi, 104). How to evaluate the outcomes of service learning was also discussed. Service learning is thus a highly flexible and useful strategy that in many ways is an implementation of the arguments made by many of the authors discussed earlier in the paper, especially Bates (1999), Crowley (2005), Markey (2004), and Stieg (1992). It can be used across LIS curricula and coursework to bring together theory- and practice-based education and enhance student learning and understanding.

The second educational strategy that shows potential is that of evidence-based librarianship. Booth (2003), in noting the “long preoccupation with the [theoretical] research-practice gap” in the field (p. 3), provided a review of evidence-based librarianship and an argument that it is a potential way forward. Drawing from multiple definitions in the literature, he defined evidence-based librarianship as an approach taking “valid, important and applicable” evidence from users, researchers, and practitioners, interpreting and integrating it in such a way as to improve daily practices in librarianship and information service. According to Booth, the process of evidence-based practice requires six phases: specifying the problem, conducting a literature search, filtering results found, critically appraising what is found, applying the results to practice, and evaluating the performance of changes made; he reviewed each of these phases

in depth, noting the entire process mirrors recent movements in the field to outcome-based research and evaluation. Booth argued that such a process would help practitioners become more reflective and research-oriented, and encourage collaboration between theoreticians and practitioners on outcome-focused projects. As with service learning, a thorough review of evidence-based librarianship is beyond the scope of this paper; nevertheless it certainly has potential. It does perhaps lack a little in specific suggestions that can be implemented in curricula, but has much promise for bridging the gap not just in the context of research (c.f. Haddow & Klobas, 2004), but also as a strategy for curriculum design in courses that might otherwise be solely based in practice (as also promoted by Morehead, 1980).

Conclusion

There has certainly been substantial literature written on the tension of theory- and practice-based curricula in LIS, and by no means is it all in agreement, as evidenced above. Nevertheless, one conclusion seems clear: the best approaches to curricula are those that attempt to span the divide between the two ends of the continuum, exploring the area between them and working to bring practitioners and theoreticians together to educate future librarians and information professionals. To further such approaches and learn more about them, there are at least four potential lines of research that should—in this author’s opinion—be pursued by the field, answering the following research questions:

1. **Do changes in LIS curricula with a more practice-focused orientation, intended to address practitioner concerns, improve the ability for students to succeed in their jobs?** Expanding upon the work of Blankson-Hemans and Hibberd (2004), Marouf and ur Rehman (2007; ur Rehman, 2010), Ocholla (2001), and others, studies that follow up on curricula changes that are intended to address the concerns of

practitioners—as alumni of LIS programs and employers of new graduates—to see if they actually are effective in improving the success of these graduates as they become practitioners would help settle whether the concerns of employers should be heard by LIS programs, or whether Stieg’s (1992) comparison to museum goers is apt.

2. **How can Markey’s model be used to span the divide between theory- and practice-based LIS curricula?** Given its great promise, it is somewhat disappointing that Markey (2004) glosses over her model’s implications. Others should pick up this ball and run with it, designing studies and projects around the model that explore how it can be used to combine theory and practice to better educate students in LIS schools. Such work can also pull from the substantial literature on the divide and other suggestions to help bridge it discussed above.
3. **Can an LIS collaboratory for curriculum development help reduce the divide between theory- and practice-based LIS education? How should it be implemented for the greatest success?** Building upon Ponti’s (2008) work, such a project would focus more directly on the tensions in LIS education and curricula, but keep her focus on bringing the academic and practitioner communities together to work on common problems with common goals. Many sub-questions could be explored here as well, relating to its success as a boundary object (c.f. Star & Griesemer, 1989) or its similarities with evidence-based librarianship (see Booth, 2003).
4. **How can service learning and/or evidence-based librarianship be used to help span the divide between theory and practice in LIS curricula in a variety of settings and contexts?** While some might argue both of these approaches have

already been used successfully, their application across coursework of different types and in different contexts and settings is still under some question. Further exploration and study of how they can be applied more broadly in bridging the continuum would help achieve the goal of bringing the two ends together in more cases, leading to a better education for LIS students.

Research that endeavors to answer these and other relevant questions will hopefully lead to advances in bringing theory and practice together in LIS curricula. While ending the debate between the two is all but impossible, the field should work to reduce the tension inherent in the discussion and to consider the continuum between the theory- and practice-based approaches. Rather than simply sitting back and watching as another “crisis” unfolds around LIS curricula, academic researchers, library practitioners, and information professionals should work together in order to provide a better future, with less drama and tension, for the field and its students.

References

- Audunson, R. (2007). Library and information science education: Discipline, profession, vocation? *Journal of Education for Library and Information Science*, 48(2), 94-107.
- Audunson, R., Nordlie, R., & Spangen, I. C. (2003). The complete librarian – an outdated species? LIS between profession and discipline. *New Library World*, 104(6), 195-202.
doi:10.1108/03074800310481876
- Bates, M. J. (1999). *The role of the Ph.D. in a professional field*. Srygley Lecture, Florida State University, October 16, 1999. Retrieved from <http://gseis.ucla.edu/faculty/bates/phdrole.html>
- Bayless, S. (1977). Librarianship is a discipline. *Library Journal*, 102(15), 1715-1717.
- Becker, N. J. (2000). Service learning in the curriculum: Preparing LIS students for the next millennium. *Journal of Education for Library and Information Science*, 41(4), 285-293.
doi:10.2307/40324046
- Blankson-Hemans, L., & Hibberd, B. J. (2004). An assessment of LIS curricula and the field of practice in the commercial sector. *New Library World*, 105(7/8), 269-280.
doi:10.1108/03074800410551020
- Booth, A. (2003). Bridging the research-practice gap? The role of evidence based librarianship. *New Review of Information and Library Research*, 9(1), 3-23.
doi:10.1080/13614550410001687909
- Bos, N., Zimmerman, A., Olson, J., Yew, J., Yerkie, J., Dahl, E., & Olson, G. (2007). From shared databases to communities of practice: A taxonomy of collaboratories. *Journal of Computer-Mediated Communication*, 12(2). Retrieved from <http://jcmc.indiana.edu/vol12/issue2/bos.html>

- Callison, D., & Tilley, C. L. (2001). Descriptive impressions of the library and information education evolution of 1988-1998 as reflected in job announcements, ALISE descriptors, and new course titles. *Journal of Education for Library and Information Science*, 42(3), 181-199. doi:10.2307/40324010
- Crowley, B. (2005). *Spanning the theory-practice divide in library and information science*. Lanham, MD: Scarecrow Press.
- Dillon, A., & Norris, A. (2005). Crying wolf: An examination and reconsideration of the perception of crisis in LIS education. *Journal of Education for Library and Information Science*, 46(4), 280-298. doi:10.2307/40323908
- Finholt, T. A. (2002). Collaboratories. *Annual Review of Information Science and Technology*, 36, 73-107. doi:10.1002/aris.1440360103
- Gardner, R. K. (1987). Library and information science education: The present state and future prospects. In R. K. Gardner (Ed.), *Education of library and information professionals: Present and future prospects* (pp. 32-52). Littleton, CO: Libraries Unlimited.
- Grogan, D. J. (2007). Education for librarianship: Some persistent issues. *Education for Information*, 25(1), 5-26.
- Haddow, G., & Klobas, J. E. (2004). Communication of research to practice in library and information science: Closing the gap. *Library and Information Science Research*, 26(1), 29-43. doi:10.1016/j.lisr.2003.11.010
- Jesse Hawk Shera. (1965). *Current Biography*. New York, NY: H. W. Wilson.
- Logan, E., & Hsieh-Yee, I. (2001). Library and information science education in the nineties. *Annual Review of Information Science and Technology*, 35, 425-477.

- Markey, K. (2004). Current educational trends in the information and library science curriculum. *Journal of Education for Library and Information Science*, 45(4), 317-339.
doi:10.2307/40323877
- Marouf, L., & ur Rehman, S. (2007). New directions for information education: Perspectives of the stakeholders. *Education for Information*, 25(3/4), 195-209.
- Marshall, V., Wilson, T., Marshall, J. G., & Harris, R. (2001). Plus ça change, plus c'est différent: A report from the KALIPER project on six case studies in LIS education. *Journal of Education for Library and Information Science*, 42(3), 206-219.
doi:10.2307/40324012
- Mezick, E. M., & Koenig, M. E. D. (2009). Education for information science. *Annual Review of Information Science and Technology*, 42, 593-624. doi:10.1002/aris.2008.1440420120
- Moran, B. B. (2001). Practitioners vs. LIS educators. *Library Journal*, 126(18), 52-55.
- Morehead, J. (1973). The theory practice problem and library-centered library education. *Journal of Education for Librarianship*, 14(2), 119-128. doi:10.2307/40322280
- Morehead, J. (1980). *Theory and practice in library education: The teaching-learning process*. Littleton, CO: Libraries Unlimited.
- Ocholla, D. N. (2001). Curriculum response to a changing national and international information environment: Theoretical and methodological paradigms on review and revision. *Education for Information*, 19(2), 143-167.
- Pettigrew, K. E., & Durrance, J. C. (2001). KALIPER: Introduction and overview of results. *Journal of Education for Library and Information Science*, 42(3), 170-180.
doi:10.2307/40324009

- Pettigrew, K. E., & McKechnie, L. (E. F.). (2001). The use of theory in information science research. *Journal of the American Society for Information Science and Technology*, 52(1), 62-73. doi:10.1002/1532-2890(2000)52:1<62::AID-ASII1061>3.0.CO;2-J
- Ponti, M. (2008b). A LIS collaboratory to bridge the research-practice gap. *Library Management*, 29(4/5), 265-277. doi:10.1108/01435120810869066
- Raju, J. (2003). The “Core” in library and/or information science education and training. *Education for Information*, 21(4), 229-242.
- Rayward, W. B. (1983). Library and information sciences: Disciplinary differentiation, competition, and convergence. In F. Machlup & U. Mansfield (Eds.), *The study of information: Interdisciplinary messages* (pp. 343-363). New York, NY: Wiley.
- ur Rehman, S. (2010). Redesigning LIS curriculum for a changing market: The case of Kuwait University. *Libri*, 60(4), 298-305. doi:10.1515/libr.2010.025
- Roggema-van Heusden, M. (2004). The challenge of developing a competence-oriented curriculum: an integrative framework. *Library Review*, 53(2), 98-103. doi:10.1108/00242530410522587
- Roy, L., Jensen, K., & Meyers, A. H. (Eds.). (2009). *Service learning: Linking library education and practice*. Chicago, IL: American Library Association.
- Shera, J. H. (1965). Theory and technique in library education. *Libraries and the organization of knowledge* (pp. 174-177). Hamden, CT: Archon Books.
- Shera, J. H. (1972). *The foundations of education for librarianship*. New York, NY: Becker and Hayes.

- Shera, J. H. (1983). Librarianship and information science. In F. Machlup & U. Mansfield (Eds.), *The study of information: Interdisciplinary messages* (pp. 379-388). New York, NY: Wiley.
- Sonnenwald, D. H. (2007). Scientific collaboration. *Annual Review of Information Science and Technology*, 41, 643-681. doi:10.1002/aris.2007.1440410121
- Sonnenwald, D. H., Lassi, M., Olson, N., Ponti, M., & Axelsson, A.-S. (2009). Exploring new ways of working using virtual research environments in library and information science. *Library Hi Tech*, 27(2), 191-204. doi:10.1108/07378830910968155
- Star, S. L., & Griesemer, J. R. (1989). Institutional ecology, 'translations' and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science*, 19(3), 387-420. doi:10.1177/030631289019003001
- Stieg, M. F. (1992). *Change and challenge in library and information science education*. Chicago, IL: American Library Association.
- Wilson, A. M., & Hermanson, R. (1998). Educating and training library practitioners: A comparative history with trends and recommendations. *Library Trends*, 46(3), 467-504.

Footnotes

¹ Readers particularly interested in the literature during this time period are referred to Morehead (1980, pp. 37-45), who reviews much of it but stresses that “the energies of library educators lay elsewhere” during this period (p. 42).