Integration of Knowledge Management with the Library and Information Science Curriculum: Some Professional Perspectives

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The growing recognition of the importance of knowledge management (KM) has led to calls for curriculum review in Library and Information Science (LIS). Drawing on the findings of a research project on the implications of KM for LIS education, this paper examines the focus of current LIS curricula in addressing KM and related concepts. This issue has been investigated from the viewpoint of the LIS community using a web-based survey, followed by in-depth interviews with 18 LIS heads of schools or senior staff at schools operating KM programs and courses. The findings indicate that there is considerable interest within the LIS community in expanding their curricula to include a stronger element of KM. Specifically, this includes the intensive coverage of knowledge in all its forms, and the inclusion of more organizational, business and management issues in the curriculum along with an emphasis on the practical dimensions of knowledge management.

Keywords: knowledge management (KM), education, library and information science (LIS), curriculum, survey

Introduction

Education for Library and Information Science (LIS) has evolved over the years in line with overall developments within the profession. A key influence on curriculum development has been the field of information science, which along with advances in IT has permeated LIS education since the 1990s, leading to the redesign of many LIS courses and curricula. The need for fundamental revisions to respond to the demands of a dynamic workplace environment is reflected in the professional literature (Milne, 1999).

With recognition of the added value of knowledge in industry and society today, commentators have called for a response from LIS educators to ongoing changes in technology and the shift towards a knowledge economy (Milner, 1998). In response to this need, there is the observation within the literature that since the mid-1990s, librarian professional associations and the LIS schools have studied the future need for information professionals, the state of LIS curricula now, and how curricula should change in the future to meet new needs (Tenopir, 2002, Studies to Identify the Challenges section, para. 1).

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KM Curricular Issues: Pointers from the Literature

The multi- faceted nature of KM has resulted in its adoption across a spectrum of disciplines, with competing claims to ownership. This is hardly unexpected in view of the importance of knowledge to so many professions. One result has been wide diversity in the design and implementation of KM programs including within LIS education (Chaudhry & Higgins, 2003; Hawamdeh et al., 2004). This diversity is linked to the fact that knowledge management is context- dependent. Indeed, Todd and Southon (2000) argue that the diversity of approaches reported from successful KM initiatives indicates that generic solutions are unlikely to be successful, and that relations between knowledge and knowledge processes and the nature of the organization, its function, its culture, its structure and position in the market, had to be considered when developing models or theoretical frameworks of knowledge management. Similarly, Amos and Chance (2001) observed that "The very nature of knowledge suggests that knowledge management is unique for every organization, and this will consequently be reflected in the future role of the professional" (p. 51). Lank (2004) called for course designers in an MBA program to teach practice not theory, and to encourage people to develop knowledge processes that worked for their organizations and the people within them. The flavor of the KM curriculum, therefore, will be different from one place to another depending upon the setting or context (Ruth, Theobald, & Frizzell, 1999).

The educational need of students in different domains is also a justification for such diversity. "Institutions which are preparing people for roles in [KM] will need to be very flexible in the way that they act to best match the needs of the students with the opportunities of the marketplace, and the demands of the specific organizations in which they are working" (Todd & Southon, 2001, p. 325).

We do not argue that such diversity in program content has emerged only with the advent of knowledge management. Koenig (1983) reported disagreement among information specialists, managers and educators about the relative importance of LIS courses and concluded that there was no necessary core in the field. Similarly, White and Paris (1985) found no consensus among practitioners in different types of libraries as to the content of the core curriculum. This could turn out to be even more of a challenge when it comes to knowledge management.

The case-specific nature of KM education has also been demonstrated in Wright's (2007) study of KM education across the United States Department of Defense. Although it was deemed important to place KM education within the context of each service, more similarity and collaboration between programs was required. Similarly, a British Standards Institute (BSI) study of skills for knowledge work concluded that while KM must be organization-specific, there was some common ground in overall approaches and in popular tools and techniques (Abell & Wingar, 2005). This suggests the need for tradeoffs in KM education between the local element and the common core. Already in LIS there is growing recognition that a broadly-based and holistic approach is essential, and for that an amalgamation of subject areas with an appropriate level of concentration is required (Todd & Southon, 2001). To find the right level of focus is challenging, as pointed out by Koenig (1999). Reporting the findings of a survey of European LIS curricula Lorring (2007) noted that "Course offerings in this field . . . include a broad range of very heterogeneous sub-themes, which are more or less taught within the realm of other [identified] course areas" (A Short Analysis section, para. 3).

Another major problem highlighted

within the literature is that of confusion between *information management and knowledge management*, which has sometimes led to the use of the terms interchangeably. Sutton and his colleagues (Sutton, 2007; Sutton, Stankosky, Gasson, Twining, & Colby, 2002) point out that course material for KM programs is based upon a framework of information that is ubiquitous, vague, and sometimes a repackaging of existing discipline material. According to Todd and Southon (2001) "In the published literature, there is a sense that knowledge management is not the same as information management, and while there are understandings and skills that appear to overlap, the implication is that the formal education and training programs for knowledge management need to be responsive to this" (p. 315). The need to make a clear distinction between KM and IM within the LIS discipline has also been stressed by Hawamdeh (2005), and in more recent times by Mezick and Koenig (2008). As Hawamdeh says "It is important to understand these overlaps [between the information and knowledge domains] and distinguish the differences that will help in developing a new and relevant knowledge management curriculum, rather than just re-naming the existing information management programs" (2005, p. 1201). This ambiguity may have originated from KM practice. Dunn and Hackney (2000) note "[KM's] remarkable similarity to the traditional features of 'information management' (IM) redressed in appearance" (p. 270), adding that "KM issues remain largely ambiguous or misunderstood with different organizational responses in evidence" (p. 273).

Over the last few years, research has been conducted to identify the major components of the KM curriculum (Ruth, Shaw, & Frizzell, 2003; Saito, Medeni, Machado, & Umemoto, 2004) . Many researchers including Widén-Wulff et al. (2005), Lasic-Lazic, Slavic, and Zorica (2003), Koch (2002), and Ferguson and Hider (2006) have reported a lack of coherence in the content of KM programs. This has led to claims that "[KM] is covering nearly everything or nothing" (Lorring, 2007, A Few Short Examples section, para. 5).

In the midst of such uncertainty, developments in the marketplace for KM graduates have reinforced the need for the provision of coherent, properly-designed KM educational programs. This paper reports current professional responses to the following key issues:

- Can existing LIS curricula meet the needs of knowledge management education or is there a need for a new approach?
- Where should the major focus of KM programs at LIS schools reside?

Methodology

The methodology consisted of an online survey of the international LIS community and follow-up interviews with LIS academics. The online questionnaire was circulated to the International Federation of Library Associations and Institutions, Knowledge Management Section Mailing List (IFLA KMDG-L), the American Society for Information Science and Technology, Special Interest Group on Knowledge Management (SIG-KM) Discussion List (ASIS & T-SIGKM- L), the Chartered Institute of Library and Information Professionals, Education Librarians Group Discussion List (CILIP- LIS- EDU), and the listserv discussion group on library and information science education issues; moderated by Dr. Gretchen Whitney of the University of Tennessee School of Information Sciences (JESSE) mailing lists during April–May 2006. The 106 responses to the questionnaire, mainly from the USA, the UK, Canada, and Australia, but also Kuwait, were the basis for the follow-up telephone interviews with 18 heads and

senior staff from LIS schools during September and October 2006. Data generated from both the survey and interviews were then triangulated.

Findings

Part 1: KM Education in the Current LIS Curriculum

The following statements embedded in the questionnaire sought to test perceptions on the current status of LIS curricula with regard to knowledge management.

(a) Existing LIS curricula can meet the needs of knowledge management education.

As indicated in Table 1, almost half of the respondents (48.1%) did not see current LIS curricula as meeting the demands of KM education, with a further 32.7% having no opinion on this. The levels of ambiguity about and disagreement with this statement could be attributed to the relatively recent emergence of KM, and the disparate/divergent range of responses to its education from LIS schools. Within the literature however, a typical message is that here is a need for significant changes in thinking, attitude, education and training before we can confidently face the knowledge management future that awaits in many important areas of the information and library professions (Reardon, 1998, Introduction section, para. 3).

(b) Current LIS curricula do not equip students with the competencies demanded by the KM environment.

The majority of participants (64.4%)

Table 1: Percentages of Agreement/Disagreement with Statements that Project the Current Posture of LIS Educational Programs in Respect of KM.

	Strongly Disagree	Disagree	Don't Know	Agree	Strongly Agree	Overall (mean)
(a) Existing LIS curricula can meet the needs for knowledge management education.	8.7	39.4	32.7	18.3	1.0	Don't Know
(b) Current LIS curricula do not equip students with the competencies demanded by KM environment.	1.0	10.6	24.0	47.1	17.3	Agree
(c) Current changes in LIS education have led to improved knowledge management practices in libraries.	4.9	16.5	47.6	21.4	9.7	Don't Know
(d) There are insufficient links between current educational programs and KM practices.	—	6.8	34.0	38.8	20.4	Agree
(e) LIS curricula must change in order to respond to the challenges of KM.	1.9	3.8	18.3	47.1	28.8	Agree

Note: The following scoring has been designed for the purpose of marking the overall perceptions of respondents in this section: 1 to 1.44 = Strongly disagree; 1.45 to 2.44 = Disagree; 2.45 to 3.44 = Don't know; 3.45 to 4.44 =

agreed that current LIS curricula did not equip students with the competencies demanded by the KM environment, with 24% falling into the don't know category. Typical here was an additional comment from a survey respondent who said "I do think that many of the people I find working in the profession don't have the necessary skill set. Admittedly many were trained years ago, but I am not sure that recent graduates are any better."

The contribution of LIS-related courses in promoting KM potential competencies has been investigated elsewhere (Hazeri, Sarrafzadeh, & Martin, 2007). These findings, and the earlier statement, would seem to suggest that the LIS community is not satisfied with the KM dimension to its existing educational programs and is demanding improvement. As Rehman and Chaudhry (2005) argue "We feel that in order to take full advantage of the KM potential, curricula and teaching in LIS programs should be reviewed with a view of turning traditional information management skills into knowledge management competencies" (Conclusion section, para. 6).

(c) Current changes in LIS education have led to improved knowledge management practices in libraries.

Nearly one third of participants (31.1%) believed that current changes in LIS education had led to an improvement in KM practices in libraries, while 21.4% of them did not. However, almost half of the respondents to this question (47.6%) were unable to comment on it, possibly owing to the disjointed nature of the movement of LIS education toward knowledge management, and/or a lack of opportunity to participate in library-based knowledge management initiatives. One comment lauded the impact of traditional LIS skills on KM practices, from a respondent who added would say most of the successful KM activities are influenced by good old LIS skills with the name changed and more company backing and money to support it now it is trendy.

(d) There are insufficient links between current educational programs and KM practices.

While no one appeared to be strongly in disagreement with this statement, and 34% answered don't know, the majority of participants (59.2%) perceived that there were insufficient links between current educational programs and KM practice.

(e) LIS curricula must change in order to respond to the challenges of knowledge management.

Interestingly, 75.9% of respondents suggested revising LIS curricula in order to respond to the challenges of knowledge management, with again a considerable percentage of hesitant respondents (18.3%). Among recent calls for curricular response to the challenges of knowledge management, Bontis, Serenko, and Biktimirov (2006) have observed that the relative youth and dynamism of the KM field meant that maintaining course content current was quite a challenge.

Part 2: The Areas of Concentration

The design of this section of the research was intended to capture the flavor of the KM curriculum in LIS schools. Determining the optimal mix of subjects from the various disciplines that best meets the objective of developing the requisite professional competencies of knowledge professionals has also been identified as a challenging issue in KM curriculum design within the literature (Brogan, Hingston, & Wilson, 2001; Ruth et al., 1999). Bearing in mind the diverse scope of existing programs, and the wide variety of perspectives on the importance of each course, it might be con-

cluded that it would be too hard or actually impossible to determine the exact content and level of the courses that should be offered. Therefore, the present researchers tried to identify some broad categories within which course subjects might fall, using both the survey and interview approaches. To this end, survey participants were asked to specify the extent of desired focus on each category, using a 5-point Likert scale. The following scoring has been designed for the purpose of marking the overall perceptions of questionnaire respondents in this section:

0 to 0.44 = Zero
0.45 to 1.44 = Low
1.45 to 2.44 = Moderate
2.45 to 3.44 = High
3.45 to 4 = Very High

What follows is a series of subject categories in order of their perceived level of concentration, from the viewpoints of questionnaire respondents (See also Figure1). The free-text section of this question provided the chance for respondents to add any other dimensions that they thought were important for the content of the KM curriculum in the LIS discipline. Further comments by interviewees have been reported where appropriate.

Knowledge and Related Issues

Questionnaire respondents perceived this as the most important theme (mean = 3.40), including: knowledge; the knowledge-based economy; knowledge creation, sharing and use; knowledge mapping; and auditing and metrics for knowledge. Additionally, the open-ended section of the question included themes like "impediments to knowledge sharing" and "different definitions of knowledge and approaches to its management." The need for the LIS curriculum to focus on the human dimension of KM was emphasised by a number of interviewees. For example, one interviewee said, "the bottom of all KM are the people who have the knowledge themselves. And you have to learn how to manage and work with them; so that they will actually share what it is they know."

Practical Dimension

Questionnaire respondents welcomed the inclusion of a practical dimension to KM courses, including practicums/internships and case studies (with a mean of 3.20). This view is acknowledged in the literature, which suggests that it is important to situate questions about a concept like KM in a real-life context (Bontis, Serenko, & Biktimirov, 2006). Again, Sutton (2007) observes, "All of the KM certification programs [offered by organizations] advertise that they facilitate the practical learning associated with KM in business, and some even explicitly suggest that most academic programs may be too theoretical to be useful in the workplace" (p. 9). The literature also contains calls for KM programs to be offered in a more pragmatic way, such as supported by substantial case studies (Southon, Todd, & Seneque, 2002) that provide students with the opportunity to develop and apply their understanding of KM to real-world situations, and in a variety of business decision settings (Bontis et al., 2006). Interviewees also called for case studies on the grounds that because KM is just somewhat of an abstract concept, having case studies is critical.

Elsewhere, professional workplace experiences or internships have been proposed as a means by which LIS education can be closely aligned with industry best practice (Milne, 1999), and which enable students to hone their understanding of the business world and to learn how KM systems are applied in various industries and corporations (Zimmerman, 2002). In this regard, Parycek and Pircher (2003) pointed to the practice-oriented aspect as

one of the main course characteristics that allow the participants to directly apply what they have learned.

Organizational and Management Issues

A further dimension emerging in the survey responses was that of organizational and management issues, including human resource management, organizational behavior, change management, project management, decision making, marketing, and strategy, which collectively attracted a mean score of 3.10. This finding is also reflected in the literature: Lai (2005) argues that education for KM should prepare students with proper understandings and expectations of corporate culture and its environment, while Koenig (1999) refers to the need for a deep understanding of organizational context and culture among graduates.

Interviewees also exhibited a significant level of support for the incorporation of business and management ingredients such as project management and change management into the LIS curriculum. One interviewee said: "One of the complaints that might be made about librarians is that they are not seen to engage with the strategic objectives of their organizations. Within the corporate sector I think there are so many proactive librarians who do engage with organizational objectives. But certainly there is a perception that LIS professionals seems to be on the periphery of their organization."

Clearly, LIS schools are responding to the needs of the KM curriculum by embracing management and organizational elements. One interviewee said that 75% of the core in their KM course comes from a management perspective, which included, for example, the link to organizational strategy, costs, benefits, standards and professional roles.

Information and Related Issues

Information and related issues, including those of the information society, information needs and provision, and information management, obtained a mean score of 3.06. Although within the literature there are recommendations that course designers need to take note that information science subjects such as information organization and information retrieval may not appeal in this market place (Brogan et al., 2001), it is important to accept nonetheless that "information and its related issues" still occupy positions of importance within the KM curriculum. Indeed, survey respondents commented on the need to stress the aspects of core librarianship that relate to and support KM, for example, information literacy, content management, information organization and information retrieval.

Within the interview data also, there were many references to the need for the inclusion of information/knowledge organization and retrieval, such as taxonomies, thesauri and indexes by interviewees. There were also references to the need for knowledge discovery and knowledge mapping in addition to knowledge organization as important subsets of the KM curriculum. In this vein, one interviewee considered three major elements for inclusion in KM courses for LIS: knowledge organization, access, and usability.

Research and Evaluation

Research and evaluation, including research methods, data compilation and analysis, survey design, and interviewing techniques was rated at the same level of importance as were information and its related issues. Within the literature, Gokhale (1999) refers to research activity in the form of, for example, project work, dissertations and investigative work, as learning tools for improving thinking skills among students, and claims that traditional syllabi have not given much attention to this aspect in designing curricula and framing syllabi.

Interpersonal Issues

Interpersonal issues, including networking and communication, team working and leadership, obtained a mean score of 3.05. Other important ingredients identified were social aspects of information-knowledge power in the workplace, and the socio-cultural dimensions of KM. This is hardly unexpected in that, for example, as more libraries converge into centers of culture, the library curriculum must necessarily focus on social and behavioural aspects of learning (Varaprasad, 2006).

The case for inclusion of communication and networking ingredients was reinforced in the interviews, with for example, one interviewee observing that successful KM is based quite heavy on networking in the old fashion form, people to people.

ICT

Information and Communications Technology (ICT), including computers and networks, information architecture, information systems and applications, ranked last among the themes, with a mean score of 2.88. However, it remains significant with one survey respondent who said, "As I graduated ages ago this may already be in place, but I certainly could have done with in-depth ICT skills rather than learn on the job to manage the website and intranet and answer all the general computing questions as ICT do not seem to know that people actually use their systems." Among interviewees typical views on the inclusion of technology were "Technology is only an enabler and only part of it," and "I don't use much technology, other than online learning. I don't do any technology work per se because for me that's not core to KM". However, as Lai (2005) and Koenig (1999) also have pointed out, it is clear that KM professionals need to know at least the basics of IT, especially in the area of telecommunication and networks, and then particularly in the Internet and its derivatives.

Discussion

In light of growing advances in the LIS discipline, the need for continual adjustments in educational programs is pressing. The emergence of discrete practice areas such as knowledge management, information architecture and digital libraries as observed by Mezick and Koenig (2008) would appear to make curricular renovation inevitable. It is important to be cautious in coming to such conclusions, in that as a subject knowledge management has been around long enough for all kinds of educators to have gained a sufficient understanding of its relevance to their particular profession and curricula. There has also been a fair amount of opposition to the very idea of knowledge management within the LIS

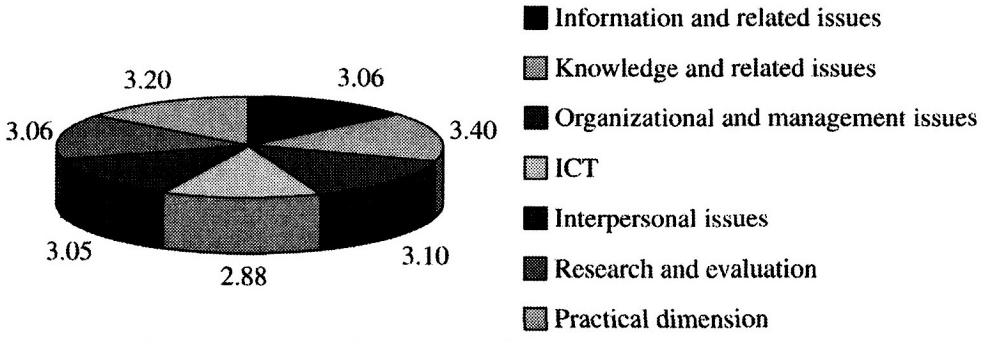

Figure 1. The level of focus on elements of the KM curriculum.

professions. More significant perhaps, as a potential threat to the inclusion of knowledge management within LIS curricula, could be the fact that it is no longer so newsworthy a topic as it was a decade ago. A cynic might approach knowledge management as just a passing fads; this school of thought can still not be dismissed entirely, certainly not so far as the presence of knowledge management in LIS research agendas is concerned.

As the result of an extensive literature review we found that a very limited body of research has been conducted in the area of KM education for LIS. Even on this limited basis, it is clear that considerable differences exist in the granularity, scope and depth of KM-related courses. Among the existing body of work however, very little research has investigated the areas of potential concentration based on the perceptions of key stakeholders such as LIS professionals and academics. Although the research had been aimed at the global LIS community, the data eventually collected in the research reported here came mainly from a group of English-speaking countries. This can be explained by the higher level of engagement of the profession in those countries with knowledge management, both in practice and in educational provision. Nevertheless, there are obvious implications for any attempts to generalise the results other than to the circumstances of these English-speaking countries. Another limitation to the research is that it focused mainly on the viewpoints of LIS educators. It is important, therefore, that additional research be conducted that addresses the nature and relevance of KM curricula, and which captures the perceptions not just of educators but also of their clients, be these students or employers.

Conclusion

There is a clear need for the inclusion of elements of KM in professional education for LIS. However, there remains a degree of uncertainty as to the extent to which this has happened. The responses of LIS schools to the potential inclusion of KM in their curricula varied according to the extent to which they sought to expand the professional/career destinations of their graduates to include non-traditional areas. Further discussion of the appropriate approach to KM education and the required level of involvement of LIS schools with KM educational programs can be found elsewhere (Hazeri, 2008). Noting that KM education is being treated differently within and outside the LIS arena, the lack of any clear consensus means that identifying the intellectual territory that should be covered by any viable KM curriculum is a challenging task. However, it is important to remember that KM education is still very young and that curricula are still evolving.

Results from the study also highlight the necessarily multidisciplinary character of KM curricula, and the need for as holistic an approach as possible, to help make graduates more employable. While some subjects would be discipline-specific or context-dependent, there are also areas of commonality. It is important to find some kind of consensus on what is fundamental for a generic KM education program, including imports from relevant disciplines, and case-specific specialisations. As Ruth et al. (1999) have anticipated, "Eventually, a set of formal elements for KM courses will be developed and professional bodies will agree on them. However, until there is agreement and dissemination, interim approaches are needed" (p. 284).

The research findings reported in this paper affirm aspects of LIS curricula as relevant to the inculcation of KM capabilities among graduates, while reinforcing the need to close existing gaps between the content of current curricula and the expectations of stakeholders including students, employers and professional associations.

Based on the findings, although existing LIS programs to some extent satisfy the demands of KM education, there is need for a greater understanding of knowledge as a concept and its related issues, while focusing on the practical dimensions of the topic. Along with these remains the requirement to cover the organizational, management and business dimensions of KM. Interestingly, these are very similar to Reardon (1998) recommendations for the content of KM curricula, for example with regard to knowledge and behavioral studies and ICT. Reardon insisted on "The inclusion of sound theoretical elements that focus, for example, on the nature of knowledge and on the behavioural aspects of knowledge development, acquisition, communication and use" (Knowledge Oriented Information Courses, para. 3). Reardon believed that inclusion of these elements would make clear that knowledge management focuses on people as generators of knowledge at least as much as users of information. These findings are also in line with recommendations of LIS curriculum content to address the need for KM competencies (Hazeri, Sarrafzadeh, & Martin, 2007).

Hence, while the current emphasis of LIS education on information and information resource management is important, it is nonetheless recommended that a further step be taken to engage with knowledge in all its forms. A shift of focus in LIS curricula is therefore required to give students a better understanding of relevant issues and to maximise their ability to leverage intangible assets for the purpose of organizational effectiveness. To impart training in these areas, co-teaching or partnership with other academic and industrial units is suggested. The implementation of such collaborative initiatives will certainly help to improve the multi-disciplinary feature of KM programs and to cater for a wide range of topics.

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