Incorporating KM education into LIS curriculum: perspectives from LIS academics

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Abstract

Purpose – The study aims to examine how and to what extent knowledge management (KM) has been incorporated into library and information science (LIS) curriculum.

Design/methodology/approach – The study is conducted using an e-mail questionnaire survey of LIS academics world-wide who adopted KM education in their schools. Based on a preliminary survey of 600 LIS schools' homepages, a structured questionnaire is sent out to 106 LIS academics via e-mail. Fifty eight (58) filled-in questionnaires are received, of which 57 are valid for analysis. The analysis follows a combination of qualitative and quantitative approaches of research with a primary focus on qualitative analysis.

Findings – LIS has assimilated the core content of KM based on the combination of varying proportions of major perspectives and skill-sets of KM with an emphasis on information management and information technology-oriented courses. The study also finds that LIS has incorporated KM following a partial adoption process through mutual borrowing of knowledge between LIS and KM.

Research limitations/implications – Many LIS schools, especially from non-English speaking countries do not come under investigation due to lack of their web accessibility.

Practical implications – The study reinforces the curriculum renovation of LIS with the incorporation of KM. It suggests a strong interdisciplinary collaboration with other disciplines having KM interests, and the adoption of a balanced approach to KM that would consider wider audiences and market demand.

Originality/value – The study presents the practical experiences of LIS academics who adopted KM education. The study also explores the concept of "mutual borrowing of knowledge" between LIS and KM.

Keywords: Knowledge management, Library and information science, LIS academics, Incorporating, Knowledge borrowing

Introduction

Knowledge management (KM) is an emerging inter- and/or multidisciplinary field that has many faces based on theories, metaphors, and approaches from several disciplines. KM is part and parcel of the new theoretical discourse that has matured in relation to the central concept of the knowledge economy (Peters, 2001). The disciplines associated with KM activities mentioned by Al-Hawamdeh (2003) include business and management,

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communication and cognitive science, information and library science, and information technology. The movement of KM got massive momentum during the 1990s by the works of a number of scholars, such as Nonaka (1991), Wiig (1993), Nonaka and Takeuchi (1995), Sveiby (1997), Davenport and Prusak (1998), and others. The history of KM is not old, but it has long been rooted in LIS in the sense of managing codified or recorded knowledge. Even, some say that KM has been with us for a long time, often referring to classic Greek Philosophy (Gamboa, 1999). As Wiig mentions, "historically, knowledge has always been managed, at least implicitly. However, effective and active knowledge management requires many new perspectives and techniques and touches on almost all facets of an organization. We need to develop a new discipline and prepare a cadre of knowledge professionals with a blend of expertise that we have not previously seen" (cited in Dalkir, 2005).

As regard to the growth of KM, Saito (2007) points out that KM is becoming mature through a number of academic activities, including international academic conferences, academic journals, handbooks, collections and encyclopaedias, and textbooks. Almost similar views have been drawn by Dalkir (2010) who mentions that students are conducting advanced research on KM topics, international conferences are being held around the world, a number of consortia and KM professional organizations have been established, specializations in KM have been increased along with the proliferation in the number of KM journals. Stankosky (2005) has laid a solid research foundation for establishing KM as a legitimate and a rigorous academic discipline. He further argues for KM as a separate academic discipline, with its own body of knowledge, scientific research frameworks, guiding principles, underlying philosophies, and professional society.

The academic movement of KM in LIS is promising, and some studies have confirmed that LIS schools/departments are the most active in KM education among the competing disciplines (Sutton, 2007; Saito, 2007). Hazeri, Martin and Sarrafzadeh (2009a) find a clear need for the inclusion of KM in professional education for LIS, but there remains a degree of uncertainty as to the extent to which this has happened. Against this backdrop of the adoption of KM education, this study investigates major perspectives and skill-sets of KM and the process of how these have been incorporated into LIS curriculum.

Literature review

Knowledge and its meaning have been a topic of debate for many centuries. There is no universally accepted concept of knowledge and its management. Knowledge has been defined as "the insights, understandings, and practical know-how that we all possess – is the fundamental resource that allows us to function intelligently" (Wiig, 1996). According to Drucker (1999), "knowledge is personal and intangible in nature, whereas information is tangible and available to anyone who cares to seek it out." The knowledge to be managed can be broadly categorized as explicit knowledge and tacit knowledge. For Polanyi (1966), tacit knowledge is personal, context-specific, and therefore hard to formalize and communicate. Explicit knowledge, on the other hand, refers to knowledge that is transmittable in formal, systematic language.

Knowledge management as defined by Skyrme (1997) is the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation, in pursuit of organizational objectives. KM can be viewed as the process of identifying, organizing and managing knowledge resources. These include explicit knowledge (information), 'know-how' (learning capacity), 'know-who' (customer capacity) and tacit knowledge in the form of skills and competencies (Al-

Hawamdeh, 2003). As an academic program, KM is now being taught in universities around the world, typically in business, computer science, education, and information studies departments (Dalkir, 2010). Although information professionals have excellent information management skills in order to be significant players in KM, they need to gain additional skills and competencies to overcome a number of challenges. This requires further education for library and/or information professionals responding to new recruitment strategies (Martin, 1999), and market opportunities (Morris, 2001; Lai, 2005), suggesting a bridge of the cultural gap between the business world and the traditions of LIS education (Koenig, 1999) and new types of course contents (Reardon, 1998; Todd and Southon, 2000; Chaudhry and Higgins, 2001).

Chaudhry and Higgins (2001) have shown differences in KM perspectives and emphasis in the course contents and curriculum areas, varying from more technology-oriented courses in computing schools to management-oriented courses in LIS and business schools. Education for KM ensures LIS graduates' entrance to the professional workforce equipped to meet the challenges of the new work environment (Milne, 1999). Todd and Southon (2000) consider the changing nature of the information industry, particularly in relation to the development of the knowledge economy with greater focus on the human and social factors, when designing KM programs for Information Studies. The professional career entry education for KM as suggested by Koenig (1999) requires information technology and applications, corporate culture and change agentry, knowledge management background, business and economic background.

Rehman and Chaudhry's (2005) study identifies seven of the 12 LIS programs in North America, Europe, and Pacific region at graduate level degrees or course work in KM, while two programs at graduate diploma, and three at undergraduate programs with KM components. A recent study of KM education at LIS schools conducted by Roknuzzaman and Umemoto (2010) shows that 17.7% of LIS schools adopted KM education in 140 different degree programs, and the diffusion of KM education was high in master's degree programs offering 91 (65%) of the KM programs or courses. The study conducted by Hazeri, Martin and Sarrafzadeh (2009b) explores some notable benefits of KM education for LIS professionals, such as, the potential broadening of professional perspectives to wider areas, and enhancement of the image of LIS professionals both within and outside the profession.

Concerning the course content of KM education, Ondari-Omeka and Minishi-Majanja (2007) have identified some existing modules in KM offered at undergraduate and postgraduate levels in South African LIS schools, including information and knowledge management (IKM), personal information management, economics of information, knowledge dynamics, trends in IKM, IKM in practice, records management, etc. The analysis of selected LIS-based KM master's programs suggests a number of KM course clusters including information/content management, information systems/computing/information technology, business and management, human and organizational behaviour, KM foundations, and miscellaneous (Roknuzaman and Umemoto, 2010). Hazeri, Sarrafzadeh and Martin (2007) observe that the key information management skills in information organization, retrieval and analysis, as well as long-standing competencies in user interaction and communication will continue to be positive attributes for LIS professionals engaging in KM. The authors further suggest that LIS courses need to contain much more in the way of business and management content in order to equip future professionals for work outside the more traditional LIS environments. Hazeri (2008) in her doctoral dissertation indicates that the LIS community is seeking to expand its boundaries into a wider professional environment than that of traditional librarianship, and that it sees KM as an effective vehicle for this purpose. The

indications are also that apart from at the elective level, KM education should be offered not just as a distinct and separate track, but also as a subject pervading the entire LIS curriculum.

Both LIS and KM bear some common characteristics, and hence, the joint core modules of the information studies program and the KM programs is adopted by the Master of Science in KM at Nanyang Technological University in Singapore and the Master of Science in KM program at the University of Oklahoma in the United States (Al-Hawamdeh, 2005). The core modules in both programs focus on the foundation of an information and knowledge society, the management of knowledge organizations, and the organization of knowledge resources. Considering interdisciplinary and versatile training of KM professionals, Sutton (2007) emphasizes on immediate and serious consideration of a KM Education Manifesto to build a joint interdisciplinary curriculum amongst business, management, and LIS faculties, as KM demonstrates and will continue to demonstrate a pervasive impact on these disciplinary areas.

Research questions

Many studies have argued for the renovation of LIS curriculum with the inclusion of KM education. The multifaceted nature of KM has raised a complex issue of its proper integration into LIS. Since a number of LIS schools have already adopted KM, this study aims to examine how and to what extent KM has been incorporated into LIS curriculum. To attain the aim of the study, we have formulated one major research question (MRQ) and three subsidiary research questions (SRQs):

- MRQ: How has LIS incorporated KM into its curriculum?
- SRQ1: What are the major perspectives of KM incorporated into LIS-based KM programs?
- SRQ2: What are the skills and competencies of KM integrated into LIS-based KM programs?
- SRQ3**:** What are the problems in incorporating KM into LIS?

Research methods and materials

The methods employed for this study include a literature review and an e-mail questionnaire survey of selected LIS academics of the world, with follow-up e-mail interviews. An exploratory survey method – or an 'experience survey' to be more specific, is used in this study. An 'experience survey', as Powell (1997) mentions, gathers and synthesizes the experiences of specialists and/or practitioners in a particular field. For an 'experience survey', the study uses a purposive or a convenient sampling technique to select the respondents of the questionnaire. Primarily, a number of 600 LIS schools is selected from 1033 schools listed in the IFLA World Guide to Library, Archive and Information Science Education (Schniederjurgen, 2007), based on their web accessibility, irrespective of the languages in which they offer their academic programs. Then, a comprehensive search of the selected schools' homepages is made to locate whether they offer KM education or not, ranging from a single KM course to a master degree in KM. Finally, 106 LIS schools are selected as adopters of KM education. There is no recognized list of KM education offerings, and many LIS schools, especially from non-English speaking countries do not come under investigation due to lack of their web accessibility.

All of the 106 LIS schools adopted KM education, and the leaders of those schools are considered to be experienced in KM. The geographic distribution of the sample LIS academics includes 38 (35.8%) in Asia followed by 28 (26.4%) in America, 24 (22.6%) in

Europe, 9 (8.5%) in Oceania, and 7 (6.6%) in Africa. According to the sample, a structured questionnaire is sent out to 106 LIS academics (Directors/ Heads/ Program coordinators of LIS schools) via e-mail. Considering the international scope of this study, an e-mail is preferred to use as a survey medium, not just for delivering the questionnaire, but also for pre-notification and non-response follow-up, or follow-up explanation of any question. Fifty eight (58) filled-in questionnaires are received for a response rate of 54.7%. Fifty-seven (57) questionnaires are considered as valid for data analysis while one questionnaire is excluded because of insufficient data.

The analysis follows a combination of both qualitative and quantitative approaches of research with a primary focus on qualitative analysis. The analysis of qualitative data involves creating codes and themes from the text, and interpretation of important themes focusing the objectives of the study. For the quantitative data (1-5 scales Likert data), we use descriptive statistics following Statistical Packages for Social Sciences (SPSS).

Study results and discussion

Attributes and geographic distribution of the survey respondents

All the 57 survey respondents are classified according to their administrative positions and their geographic locations. Table 1 shows seven categories of respondents based on the administrative positions they hold. The highest number of respondents i.e. 12 (21.1%) are identified as “KM Course Instructor” followed by 10 (17.5%) as “Head of Department”, 9 (15.8%) as “KM Course Coordinator”, 8 (14.0%) as “Dean/Director of School”, 7 (12.3%) as “LIS/IM Program Director”, and 6 (10.5%) as “KM Program Director”. The rest of the 5 (8.8%) participants do not have any administrative position, but they have responded to the questionnaire being instructed by their superiors, considering either their previous administrative positions or their rich experience and knowledge in KM.

Table 1: Administrative positions of the respondents

Administrative position		**Frequency**	**Percent**	**Cumulative percent**
N= 57	Dean/Director of School	8	14.0	14
	Head of Department	10	17.5	31.5
	LIS/IM Program Director	7	12.3	43.8
	KM Program Director	6	10.5	54.3
	KM Course Coordinator	9	15.8	70.1
	KM Course Instructor	12	21.1	91.2
	Presently none	5	8.8	100
	Total	57	100	

According to the geographical locations of LIS-based KM education offerings, the study participants are categorized into five broad geographical regions. The highest number of respondents i.e. 17 (29.8%) are from America, of them 13 from the USA and 4 from Canada. Asia is in 2nd position with 15 (26.3%) responses, of which 10 from China (China 5, Taiwan 4, and Hong Kong 1), and one each from Korea, Kuwait, Malaysia, Singapore, and Thailand. The third highest number of respondents are from Europe i.e. 14 (24.6%), including 6 from the UK, 3 from Germany, and one each from Austria, Croatia, Estonia, Finland, Italy, and Spain. Besides, 6 academics (10.5%) from Oceania region (Australia 5, and New Zealand 1),

and 5 (8.8%) from Africa, more specifically from South Africa, have responded to the questionnaire.

Incorporation of major perspectives of KM into LIS

In incorporating KM education, LIS schools have considered some common dimensions or perspectives of KM, although the priorities of KM perspectives are varied from school to school. Only 35 of the 57 respondents have provided answers to the question concerning the priorities of KM perspectives (e.g. Information, Technology, Human, Business or other perspectives of KM) given their schools. All the 35 respondents have given emphasis on all of the major perspectives of KM, focusing on different subjects/units with varying proportions. Among the 35 responses, 23 are valid with relevant proportion of major perspectives of KM. The other 12 responses have no such proportion of the KM perspectives, or simply have the rankings of the perspectives. The dimensions or perspectives of KM, as noted by 23 respondents, are considered within the following four broad categories identified by Roknuzzaman and Umemoto (2010):

- Information perspective,
- Technology perspective,
- Business perspective, and
- Human perspective.

The present study finds that, 10 of the 23 LIS schools have incorporated KM with emphasis on technology dimension, eight schools with emphasis on information dimension, and two schools each with emphasis on business, and human dimensions of KM. Only one respondent claims to have a balanced approach of IT, information and management in their program. These 23 schools are coded (as S1, S2, S3….S23) for analysis of the proportion of important perspectives of KM incorporated into their programs/courses, as is shown in Table 2. Most of the LIS schools that offer KM education are either traditional LIS with a technology focus or information management –oriented.

- *Information perspective of KM*

Information or content and its management are considered as one of the important pillars of KM. The traditional focus of LIS programs has been on meta documents- books, journals, maps, images, records, etc. The essence of modern LIS programs, however, is based on strong orientation to information or content, rather than containers. Many LIS schools have designed their KM courses/programs, keeping in line with IM curricula, focusing more on information and knowledge-related courses. Moreover, the existing context and background of LIS people have contributed to allocate major proportion of information perspective of KM in the curricula. In this regards, a head of a LIS schools describes his experience in the following way:

> We tried to incorporate a balanced approach ..., but our students had fascination with deep involvement in information, media, and communication management. Moreover, we didn't have highly specialized faculty members... Although we introduced important aspects of KM to varied degrees in our curriculum, we however, emphasized the fundamental premise that information and its effective management are central to the social, economic and cultural well-being of society.

- *Technology perspective of KM*

The technology-centered perspective is that IT enables and provides the entire infrastructure, tools and techniques to support KM strategies. Considering information and technology as key factors for LIS education and practice, many LIS schools have emphasized the technological dimension in designing their KM programs. One of the respondents claims that they have concentrated more on IT and applications in deciding the main focus of LIS curricula. Courses such as knowledge databases and repositories, knowledge networks and communications, KM system design and analysis, information and knowledge architecture, information processing tools, knowledge discovery, data mining, knowledge mapping and taxonomies, groupware and collaborative tools for knowledge sharing, etc. are included in their curricula. Additionally, other perspectives, say for example, people or cognitive management, etc. have been incorporated. Finally, he remarks:

> I would say again that our motive was to prepare students with multidimensional skills, and we think that our KM curriculum with more IT concentration was designed in such a way – to include content management, business management, process management, innovation management, cognition, etc. satisfying students' interests, according to faculty specialization, as well as market demand.

Table 2: Proportion of KM perspectives integrated into LIS-based KM programs

LIS Schools	Country of origin	Proportion of KM perspectives				Nature of LIS School
		I	T	B	H	
S 1	South Africa	30%	35%	15%	20%	Traditional LIS with Technology
S 2	UK	35%	30%	15%	20%	Information Science
S 3	Singapore	33.3%	33.3%	33.3%	0%	Traditional LIS with Technology & Business Information Management
S 4	China	40%	25%	15%	20%	Information Management
S 5	USA	30%	35%	20%	15%	Information Management
S 6	USA	40%	30%	15%	15%	Traditional LIS
S 7	UK	25%	25%	15%	35%	Information Management
S 8	South Africa	25%	20%	30%	25%	Business Information Management
S 9	Australia	25%	20%	25%	30%	Business Information Management
S 10	Canada	35%	40%	0%	25%	Traditional LIS with Technology
S 11	USA	30%	40%	15%	15%	Traditional LIS with Technology
S 12	South Africa	30%	35%	15%	20%	Information Science
S 13	UK	25%	30%	35%	10%	Traditional LIS with Business
S 14	USA	35%	30%	20%	15%	Traditional LIS with Technology
S 15	Canada	40%	30%	20%	10%	Traditional LIS
S 16	USA	30%	40%	15%	15%	Traditional LIS with Technology
S 17	USA	40%	25%	15%	20%	Traditional LIS
S 18	USA	30%	40%	15%	15%	Traditional LIS with Technology
S 19	Australia	40%	35%	10%	15%	Traditional LIS with Technology
S 20	China	30%	35%	15%	20%	Traditional LIS with Technology
S 21	Germany	45%	30%	15%	10%	Information Management
S 22	Australia	35%	40%	0%	25%	Information Management with Technology
S 23	Taiwan	30%	40%	15%	15%	Traditional LIS with Technology

Note: I – Information; **T –** Technology; **B –** Business; **and H –** Human

- *Information perspective of KM*

Information or content and its management are considered as one of the important pillars of KM. The traditional focus of LIS programs has been on meta documents- books, journals, maps, images, records, etc. The essence of modern LIS programs, however, is based on strong orientation to information or content, rather than containers. Many LIS schools have designed their KM courses/programs, keeping in line with IM curricula, focusing more on information and knowledge-related courses. Moreover, the existing context and background of LIS people have contributed to allocate major proportion of information perspective of KM in the curricula. In this regards, a head of a LIS schools describes his experience in the following way:

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- *Business perspective of KM*

Knowledge is now considered to be a strategic resource, and a source of competitive advantage. LIS curricula always lack in strategic or business flavor. Considering the economic value of knowledge, and niche markets for graduates, some schools have incorporated KM from business point of view. They have concentrated more on e-commerce, business intelligence, strategic IM, business information systems, economics of information, etc. arguing that other courses of their LIS curricula deal more with information and technological aspects. One of the respondents states:

> In our KM program, we considered all of the main streams of KM, with special emphasis on business and organization-oriented courses, since our LIS curricula cover wide ranges of information and technology-oriented courses. As a result, we had to hire faculty members from the business administration department to teach our students. But the good point is that our graduates are now entering industry-oriented jobs.

- *Human Perspective of KM*

The people-centered perspective of KM refers to the aspects of psychology, human development, cognition, organizational behavior, and management. Proponents of this perspective believe that the development of human intellect, human resource management and organizational learning are paramount for any knowledge intensive organization. Being an intellectual information/knowledge resource center, a library always deals with the collection, organization and dissemination of its information resources, but the management of its human resources and sharing of tacit knowledge have largely been ignored. Although most of the respondents indicate that they have incorporated human perspectives into their KM curricula, only a few claim to have a high concentration of human-related topics like human resource management, KM principles, human networks and social capital, organizational learning and learning organizations, management of intellectual capital, etc. From this perspective, the following statement comes from a respondent:

> I think KM curriculum should include all of the major dimensions of KM, and we also did the same, but if you ask about the proportions, I would say that we did more on human aspects. Well, look at our LIS curricula….abundance of information and technology-oriented courses, but what about other dimensions? Considering the tough job markets for the graduates, we focused on organizational and human perspectives of KM, without ignoring other orientations.

Incorporation of KM skills and competencies

Some of the respondents have reported that many LIS schools teach the generic skills listed in Table 3, and they are not labeled as KM skills. However, 55 respondents have rated the extent to which such skills and competences are integrated into their KM program or course.

Table 3: KM skills and competencies incorporated into LIS-based KM programs

Skills and competencies	N	Min	Max	Mean	Std. Dev
Information Management	55	3	5	4.22	.658
Information Technology	55	1	5	4.02	1.096
Human and Organizational	55	2	5	3.84	.788
Management	55	2	5	3.58	.738
Strategic/Business	55	1	5	3.57	.854
Interpersonal & Communication	55	2	5	3.40	.873
Personal Behavioral	55	2	5	3.09	.908
Valid N (listwise)	55				

Note: *1-5 scales are measured according to the range of the following mean scores:*

- Extremely Limited Extent = 1.00 -1.49
- Limited Extent = 1.50 – 2.49
- Moderate Extent = 2.50 – 3.49
- High Extent = 3.50 – 4.49
- Extremely High Extent = 4.50- 5.00.

Among the skills and competencies, “information management” is the most important, and the extent to which IM skills are incorporated is ‘high’ (with mean score 4.22 on 1-5 scales) followed by “information technology” (mean 4.02), “human and organizational skills” (mean 3.84), “management skills” (mean 3.58), and “business/strategic skills” (mean 3.57). The skills and competencies which are incorporated to a ‘moderate extent’ include “interpersonal and communication” (mean 3.40), and “personal behavioral skills” (mean 3.09). Also, some of the respondents have included a number of KM skills and competencies in “other categories” to a ‘high extent’, e.g. transferable skills, cognitive skills, intercultural competencies, social capital, organizational behavior, etc. In fact, content management, knowledge organization, KM technologies, business skills, and human resource management are considered to be important skills and competencies of KM. LIS Schools can play a significant role in realizing the potential of KM for information professionals, and these skills and competencies provide an opportunity to capture new posts in knowledge-based companies and other related fields.

Mutual knowledge borrowing between LIS and KM

This study finds that KM education has been offered by the LIS schools either as separate KM programs or as integrated into LIS programs, but there exists a great deal of convergence between the curricula of LIS and KM. The word ‘convergence’ refers to common trends or characteristics representing a degree of overlap or unification between two or more disciplines. The extent of convergence depends on how the schools defined LIS and KM; however, in some cases, more than 70% - 80% courses of KM programs are found to be cross-listed with LIS. In a question of the type of knowledge borrowed from KM, 31 questionnaires are found to be valid (others do not provide answer to this question), among which six (6) respondents do not believe that they borrow any concepts from KM, rather they think that KM has borrowed many concepts from LIS. The rest of the 25 respondents believe that they have borrowed many concepts from KM, and such concepts have not even been touched by LIS before the emergence of KM. One such response was:

> A great deal. There are areas that we had not even touched before thinking about KM. These are related to intellectual and social capital, social networking, sharing, creation of conducive organization cultures, Community of Practices (CoPs), etc.

In fact, most of the LIS schools have designed their KM programs considering the strengths and weaknesses of their existing LIS curricula, and therefore, the degree of knowledge borrowing or transferring varied from school to school. In general, LIS has contributed to developing the knowledge base of KM by maintaining a mutual knowledge borrowing system. Since many disciplines have contributed to the development of KM, its knowledge domain is very broad, and to adapt the whole content for a particular discipline is not an easy task. Thus, LIS has retained the converging areas or transferred their component parts relevant to KM, and has borrowed new concepts (but not all) input by other disciplines to KM considering their subject interests, and market demand for their graduates – which means LIS has adopted KM partially.

As shown in Figure 1, LIS has developed a significant part of KM by its ‘information management’ or ‘organization of knowledge’ aspects, which we describe as the converging area between the two knowledge domains. These include information and knowledge organization, content development, database management, record management, portals & information architecture, data mining, information storage and retrieval, indexing, networking, information policy, information literacy, etc., which have formed the explicit

dimension of KM. Similarly, LIS has borrowed some concepts from the broad domain of KM which include business/competitive intelligence, human capital management, KM tools and technologies, KM strategies, KM systems, knowledge sharing, organizational learning, communities of practice, etc

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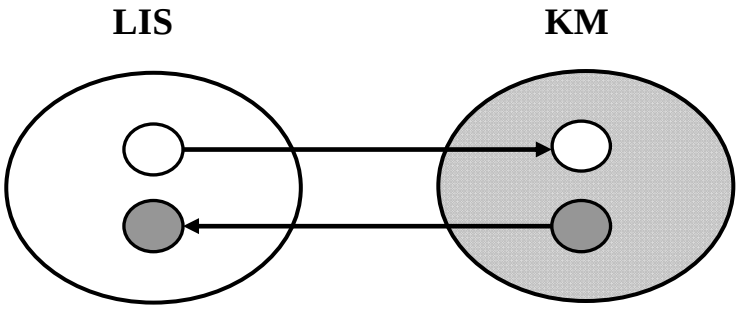

Figure 1: Mutual knowledge borrowing between LIS and KM

Problems in incorporating KM into LIS

The problems faced by LIS academics during the incorporation of KM into LIS are shown in Table 4, according to the order of importance.

Table 4: Problems in incorporating KM education into LIS

Nature of problems	N	Min	Max	Mean	Std. Dev
Lack of resources (Financial, staff, teaching and learning materials, etc.)	51	2	5	4.00	1.114
Lack of collaboration and cooperation with other disciplines	51	1	5	3.88	1.143
Lack of knowledge in determining appropriate KM contents for LIS	50	1	5	3.74	1.226
Lack of initiative	51	1	5	3.61	1.372
Existing environment of LIS school	50	1	5	3.60	1.385
Psychological issues (specially for those who are highly traditional)	50	1	5	2.80	1.178

Note: *1-5 scales are measured according to the range of the following scores:*

- Highly Unimportant = 1.00 -1.49
- Unimportant = 1.50 – 2.49
- Neither = 2.50 – 3.49
- Important = 3.50 – 4.49
- Highly Important = 4.50- 5.00.

Respondents have identified ‘lack of resources’ as one of the important problems (with mean score 4.00 on 1-5 scales) for the incorporation of KM into LIS. The crisis in human, capital, and material resources have a negative influence on adopting or continuing KM education. “Lack of collaboration and cooperation” is identified as the 2nd important barrier to incorporate KM into LIS (mean 3.88). Without cooperation and collaboration, it is very hard to run a holistic KM curriculum for a particular discipline, because of the multiple perspectives of KM. The next important problem is “lack of knowledge in determining

appropriate KM content for LIS" (mean 3.74). Being multidimensional in nature, the knowledge-base of KM is very broad. Moreover, there exists many overlapping concepts between LIS and KM, and no consistency can be found among the curricula of LIS schools regarding the course content of KM. Another important barrier to incorporate KM into LIS is the "lack of initiative" (mean 3.61) on the part of the faculty members. LIS people have significant potential for contribution to KM, but many of them don't know how to exploit this, and in general, they are reluctant to step forward, due to the lack of leadership and understanding of the concept. Respondents consider "the existing environment of LIS schools" as an important barrier (mean 3.6) to incorporating KM. It is very difficult for the traditional LIS schools to adopt KM successfully without changing mindset and culture. Regarding the point of psychological issues of the faculty members, especially those who are highly traditional, respondents have shown 'neutrality' with mean score of 2.80. However, a number of respondents remark that some of their colleagues have shown a negative attitude toward incorporating KM because of their traditional mindset, shallow perceptions or lack of background on KM. Some are afraid of losing their authority in the school, and they are reluctant to update their ideas.

Conclusion

KM has been incorporated into LIS schools, as either a separate program or as an integrated course or module, into LIS/IM degrees. Although the courses/programs are designed as additions to LIS, many of the respondents consider revision of LIS curriculum with the flavor of KM. The renovation of LIS curriculum is an ongoing process, with the incorporation of new courses or programs, and reorganization of the existing structure. At the decision-making level, not all schools have embraced the same experience, but some of the common issues which emerged led LIS academics to decide the knowledge base for KM.

The study finds a mutual borrowing of knowledge between the knowledge domains of LIS and KM, when incorporating KM into LIS. In curriculum design, LIS academics have borrowed new concepts such as business and competitive intelligence, intellectual capital management, KM tools and technologies, KM strategies, organizational learning etc. from KM, and have assimilated core content based on the combination of varying proportions of information, technology, human, and business perspectives. Although the LIS academics have emphasized all of the major dimensions and skills of KM, in practice, they have considered KM mainly from IM and IT points of view, according to subject relevancy to some aspects of human and business related courses. The important problems in incorporating KM into LIS are lack of resources, lack of partnership and collaboration, lack of initiative, lack of knowledge in determining appropriate content, and the existing environment of LIS schools.

Studying small number of KM adopters may not provide the global scenario of LIS-based KM education. However, the knowledge and experience of KM adopters can contribute to those who have not yet adopted KM. Based on the prevailing situation, this study suggest that LIS academics need to adopt a balanced approach to KM that considers wider audiences and market demand. Since KM is being developed through inputs from many other disciplines, it would be a tough challenge for LIS to succeed in incorporating KM, unless LIS academics have knowledge of business and management. Martens and Hawamdeh (2010) essentially remark that information and technology skills are necessary but not sufficient to knowledge management as a profession. Emphasizing earlier findings of other researchers (Rehman and Chaudhry, 2005; Sutton, 2007), we therefore, suggest a strong interdisciplinary collaboration with other disciplines having KM interests.

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