Developing Library, Information and Knowledge (LIK) Competencies: Challenges for Educators

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Library, information and knowledge (LIK) competencies have elements of distinct commonness and innate semblance. These have been treated together in the iSchools, a development during the last two decades. Adoption of the nomenclature of information management (IM) in a Pakistani LIS department should also be studied with the same outlook with a keen sense of paradigm shift. This paper reflects on this significant transition and identifies the challenges that are to be addressed in order to manage change effectively. This paper outlines a strategy for curriculum redesign, based on a conceptual model this author had developed earlier. Other challenges of transition need to be treated with incision and rigor.

Keywords Knowledge competencies, Information Management (IM) - Nomenclature, Curriculum redesign

Background

Library, information and knowledge (LIK) professionals are facing the challenges of constant change. Library, information and knowledge education (LIKE) has had a corresponding share of change in responding to the emergence of new areas of studies and specializations (Rehman, 2010). These Changes are profound, pervasive and far-reaching. Henczel (2004) proposed new knowledge, skills and personal attributes that were needed for the emerging roles and responsibilities in the new era. The professional job had changed from a technical service staff to diverse roles in LIK domains due to socio-cultural, economic and technological advances and their impact on the job market. LIK professionals need to mix broad and in-depth skills to satisfy customers' needs whose expectations have risen during the last few years. LIKE needs to respond to the information market needs for changes in the preparation of information professionals. Back in 1999, TFPL completed surveys of the market and identified how the field had opened new opportunities in the areas of information management (IM) and knowledge management. Abell (1998), the principal consultant of TFPL, emphasized that there were many new opportunities for the information professionals and if they did not benefit from them, new opportunistic professions may take lead.

KALIPER study (2000) had a significant impact on library and information education. It offered an analysis of the situation and trends of LIS education in North America. They noted that the field had undergone many positive changes that have been evident in the following six trends:

1. Curricula are addressing broad-based information environments and information problems.
2. These curricula continue to incorporate perspectives from other disciplines; a distinct core has taken shape that is predominantly user-centered.
3. These schools and programs are increasing investments and infusion of information technology into their curricula.

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4. These schools and programs are experimenting with the structure of specialization within the curriculum.
5. These schools and programs are offering instruction in different formats to provide students with greater flexibility.
6. These schools and programs are expanding their curricula by offering related degrees at the undergraduate, master's and doctoral level.

Conceptual Frame and Definitions

I have used the terms of LIK and LIKE in this paper. These terms are oddly unique and present a paradigm shift proposed in this paper. New domains of studies have surfaced in the areas of information science, information management, information architecture, information organization, ICT applications in networking and portals, digitization and digital library initiatives, and knowledge management. During the last century there has been a constant shift in the traditional LIS education; initiated with the clerical-cum-technical character of library economy to library science, documentation, information studies (information science, information management, etc.). Library and information science (LIS) has been used most commonly as a generic term, encompassing many diverse nomenclatures and disciplinary orientations.

Information management, as a discipline, has had its roots in the traditions of LIS, archives, document management, information systems, new approaches and strategies for information organization, and diverse connotations related to information resource management of 1980s. When taught at both undergraduate and graduate levels, it has had diverse orientations, coverage, and thrusts. Information is indeed fundamental ingredient of this information management, connoting technical and organizational dimensions.

Knowledge management is fundamentally related to information management. Put in a simplistic fashion, the part dealing with explicit/documented/ codified knowledge can be synonymized with the discipline of information management. Tacit dimension of knowledge is mostly the softer aspect of knowledge, related to socio-human complexion. First decade of the life of the discipline of KM was quite heavily overshadowed by technology; information management rooted in its spirit and substance. Oxbrow and Abell (2002); Southon and Todd (2001) noted that a common denominator existed between IM and KM. Koenig (1999) provided a checklist of KM areas that could be better taught in LIS environment.

iSchools are patterned across the academic and professional diversities of information and knowledge management. If we analyze the curricular and academic profiles of these schools, we find various degree programs, tracks of specialization, and inter-disciplinary offerings in these areas, heavily relying on the cooperation among different stakeholders on an academic campus. Interestingly many of these schools are emanating from the tradition of a library schools and still they offer degree programs and tracks for the distinct job market of libraries. Being a major employment sector, libraries still receive a great deal of attention in these schools. New approaches about the philosophy of librarianship emphasize virtual place in the wider information and knowledge context; having an entirely new identity where it becomes a natural part of the new world of information and knowledge. iSchools are offering academic programs that are intended by the LIK term introduced earlier.

Against this backdrop, now it is practically convenient to define the term LIK as it has been operationalized in this paper. Here it means a discipline where the antecedent content of science of librarianship is treated as part of the overall fields of information management and knowledge management in an integrated and cohesive sense. Essentially functioning of the institution of library is an integral ingredient of the world of information and knowledge.

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Now when we define LIKE, it is the preparation of an individual through rigorous educational exercise conducted in the formal setting of LIK. This would cover the academic entities that have a structured curriculum designed around degree offerings of various schools functioning in the domain of LIK. An obvious example of that is the development and management of iSchools. A great deal of diversity is readily noted in the academic offerings of iSchools in the form of degree programs, tracks of specialization, and inter-disciplinary offerings of coursework.

Development of Information Management Program in Pakistan

It is a welcome initiative that University of the Punjab has established first program of information management in the country. It is expected that other LIS departments in the country may also follow the suit and many of them may adopt this nomenclature. Anwar (2009), in a landmark position paper, had claimed that diversity in names and labels leads to a thorough scrutiny of the possible titles for adopting an appropriate nomenclature. Quite understandably, he had established a formidable case for adopting the title of '*information management*.' He asserted that the title was most appropriate as it covered the true academic and professional properties of the field. Based on his line of argument, this title is perhaps adoption of most suitable developmental strategy.

Appreciating the welcome initiative, every change needs to be accompanied by a number of policy initiatives for the conscious direction this change may earmark. The foremost challenges can be summed up as follows:

1. Every professional program is essentially for a given job market. While we have tens of thousands of libraries in the country, the number of professionals managing these institutions would far exceed that number. Public sector is admittedly the primary employer of these professionals. There is a struggle of 5-6 decades that has culminated in the creation of a career setup for these professionals. The requisite qualification for any of these positions is a degree in library and information science. Is it a practical proposition that a degree in *information management* is recognized as a legitimate substitute of *library and information science?* Employment and career advancement of thousands of graduates will be at stake unless this change is accorded official recognition without any lapse of time.
2. Change needs to be substantial in spirit and substance. Discipline of information management encompasses fundamental transitions in all the areas of information creation, organization, retrieval, use, and evaluation where IT permeates through all the curricular content. It requires curriculum that caters for the coverage and scope of the field of information management.
3. Faculty is indeed the most vital contributor as well as a stakeholder in the success of any academic program. Faculty orchestrates changes and there are strong elements of resentment among them. They need to have the expertise of curriculum design and change. Also for academic effectiveness, they need to possess the specialized knowledge needed in diverse areas of information management. Also they need to possess the pedagogical capabilities needed in virtual environment. These are the fundamental challenges that have to be addresses if information management programs need to succeed.
4. The infrastructural demands necessitate provision of elaborate resources and facilities, which can only be accomplished if leadership is committed and ample financial and technological inputs are guaranteed. Political acumen should be applied in the pursuit of these ideals and aspirations.

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While we have outlined major challenges faced in the transitional exercise for any academic program embracing LIK frame of iSchools, in this presentation, considering space limitations, we are confining to the desirable strategic directions in the study of market and the resultant curriculum design. Other two aspects deserve incisive treatment, desirably in additional deliberations.

Curriculum Design

A number of studies have dealt with scope and policies related to curricula and academic programs and directions (Berry 1999; Blankson-Hemans & Hibberd 2004; Edomi&Ogbomo 2001; Genoni, Exon &Farrelly 2000; Genoni&Smith 2005; Jefferson & Contreras 2005; Moahi 1999; Yen, et al. 2003). For curriculum revision and redesign we proposed a model that was earlier presented (Rehman and Al-Daihani, 2008).

Proposed Model

1. **Attributes of the Model.**

Based on the available review of studies, we are able to propose a model for the design of education programs. The model is presented in Figure1. This model has the following elements: (1) analyzing market needs, (2) assessing resources and capabilities, (3) defining competencies and capabilities, (4) designing curriculum and program development, (5) designing and implementation, and (6) evaluation. The model stipulates that the design of education programs is based on the following:

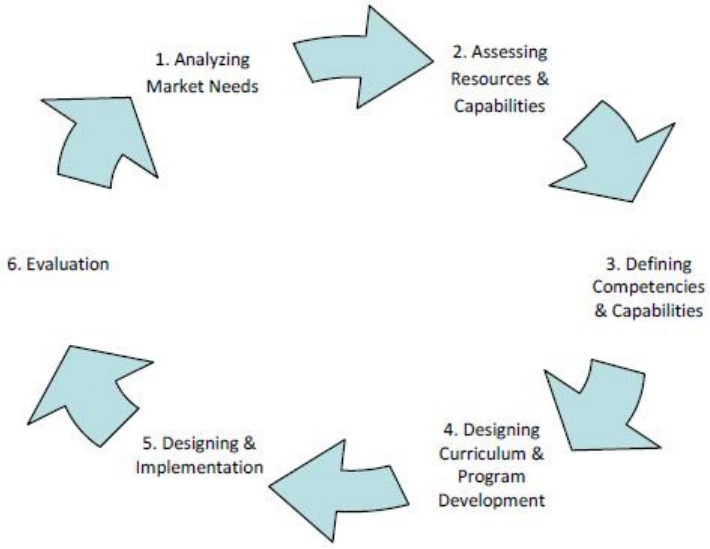

Figure1.Model for the Design of Education Programs

1. An assessment of market needs should be made.
2. Market assessment should be followed by a review of the situation and capabilities of the academic programs.
3. A systematic effort of competency definition should provide for the basis of design of curriculum and academic programs.
4. Academic programs need to be developed, implemented, and evaluated systematically. The model is cyclic and continuous in nature.

Assessment of Market Needs Figure 2 provides a view of the strategies that need to be employed for assessing market needs. These include a number of pertinent factors. Employment market is the most credible barometer. For this purpose, the environment needs to be scanned

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through surveying information and knowledge operations and activities, ICT infrastructure, and employer perceptions. National policies present significant pointers to the changing market. These are related to socio-political, legal, economic, political, education, media, S&T, R&D, and human resource policies. These have both long-term and short-term implication for the need of information and knowledge professionals. Another important variable is related to graduates of the academic programs. The alumni perceptions about ground realities and their insights about emerging needs are most pertinent in this review process. Also, there is a need of stocktaking of the opportunities of education and training in the higher education and vocational education programs in any given situation.

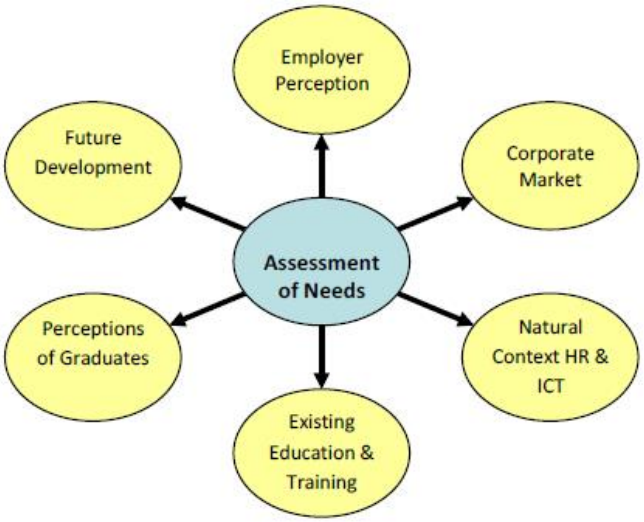

Figure 2.Assessment of Market Needs

Competency Definition

Figure 3 provides a graphic view of the important sources of information used in the process of defining competencies. These include surveys of the employment market, task analysis resulting in data banks, input from experts in the field, and using modular approaches in the identification process. Competencies need to be appropriately validated in order to serve as the essential framework for the design of education programs and curricula.

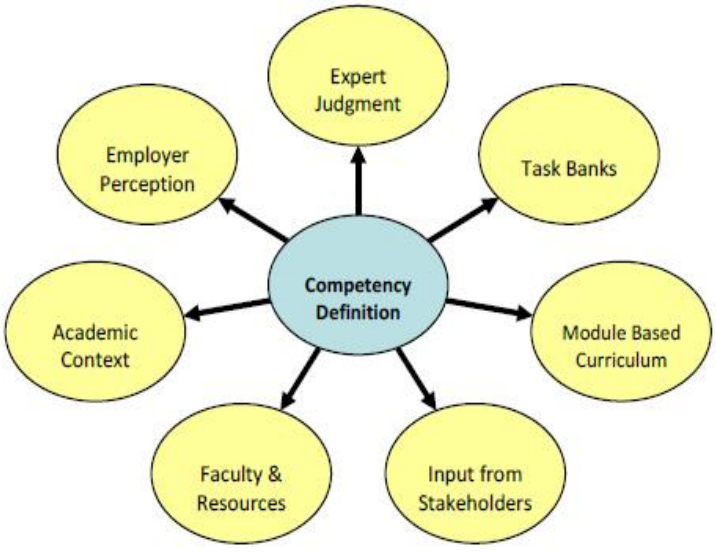

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Figure3.Competency Definition

4. Areas of Competencies for LIKM. A number of competency studies have been conducted that have resulted in identification of major areas of competencies (Buttlar and DuMont (1996); Middleton, 2003; Rehman, Majid and Abu Baker, 1997a; Rehman, Abu Baker and Majid, 1997b; Rehman, Abu Baker and Majid, 1998; Rehman, Majid and Abu Baker, 1998; Rehman, Majid and Abu Baker, 1999). Special Libraries Association, Medical Library Association and Law Library Association have also proposed sets of competencies. Based on these studies, we can identify primary competencies that need to be focused in our efforts of curriculum revision and redesign.

Figure 4 gives an overview of the areas in which information and knowledge management competencies need to be defined. Since these areas have the most significant influence on LIK education, the LIK educators need to have a critical view of these areas. These areas are related to the apparent needs of the emerging employment market. A careful review would help the educators in having a clear focus on the desired competencies, which can be translated into efforts of curriculum and program redesign.

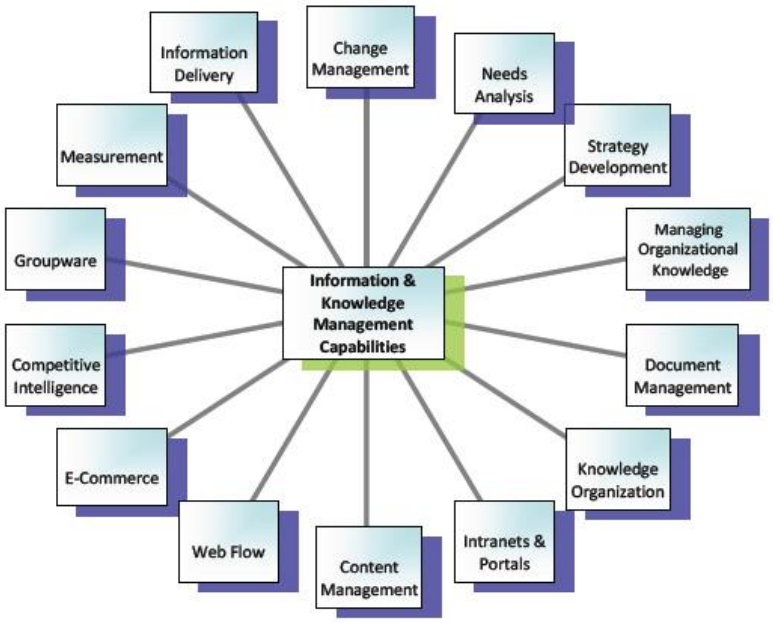

Figure 4.Competency of Information and Knowledge Management

In order to test the validity of the proposed model, a rigorous data collection and analysis are required for all the dynamic attributes of the model. However, the research and data may never be as comprehensively available for any given situation at a particular space or time-point. The practical approach would be that studies of different variables, available in the literature, are taken into consideration. Also, research and data collection focused on one or a number of variables need to be taken into consideration. This way, over the period of time, we can cumulate a credible body of evidence that can be factored in.

Academic Programs and Specializations

One primary challenge is the realization that a degree in information management must not exclude graduates for libraries and librarianship. There are tens of thousands of professional

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positions in these institutions and the number would steadily increase during many future decades. No school offering a degree in information management can preclude this huge market. There is an urgent need that these departments of information management develop either distinct degree programs for this segment of market or they have designed core and electives that an adequate number of graduates become available for libraries. A paradigm shift is warranted where the institution of library serves one of the vital markets of information and knowledge domains. Traditional courses of cataloging, indexing, reference, collection development, serials, government documents, etc. are simply out-of-place, out-of-tune, outdated, and outmoded. Digitization, databases, Web-based systems, business and corporate information, social media, information architecture, etc. are most vital capabilities for managing libraries in the virtual world of information and knowledge.

Whereas Library-oriented degree programs or tracks of specialization are fundamentally needed in any information management department in any of the national universities, information management (IM) courses must become the hardcore content. Syracuse University is a pioneer in the area and their degree in information management presents a viable model. University of Maryland's MIM program also provides another substantial model. Nanyang Technological University's Master in IM is a well-established pioneering program. Any information management program in Pakistan needs to be genuine and legitimate and should offer courses in the areas that are well established and commonly found in established Master's program of IM.

As was expounded in the early sections that IM (Information Management) and KM (knowledge management) are fundamentally akin and inter-dependent. KM, as a discipline and a field of practice, exceeds the limits and boundaries of IM. There exists a strong justification to offer a degree program or a track of specialization in KM. Rehman, Chaudhry and Al-Alvi (2013) conducted a seminal study about desirable KM content. Table 1 is reproduced from the paper for the benefit of those who wish to design a KM degree program or track of specialization. KM experts from all over the world validated KM course modules, listed with respective mean scores and standard deviations in a descending order by the mean score.

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Table 1

Relevance of KM Modules (N=55)

Knowledge Management Systems/ Modules	*Mean Score*	*Std. Deviation*
Definitions and key concepts: knowledge; types of knowledge (tacit, explicit and other types); knowledge-based economy; knowledge management	4.78	.541
Knowledge cycle; knowledge acquisition; knowledge creation; dissemination of knowledge; use and re-use of knowledge	4.26	.965
Sources: best practices; case studies; lessons learned; organizational memory (corporate and institutional memory); repositories	4.12	.816
Analysis and identification of existing knowledge (knowledge audit)	3.90	1.025
Knowledge sharing methods: storytelling and narratives; learning by observations; interview with experts; knowledge sharing examples; barrier to knowledge sharing; incentive to promote knowledge sharing	3.88	.840
Learning organization (and organizational learning)	3.80	.895
KM theories and models; organizational epistemology (Krogh &Roos); knowledge conversion (Nonaka & Takeuchi); building and using knowledge (Wiig); i-space (Boisot)	3.78	1.154
Communication and collaboration tools	3.76	.951
Organizational culture; organizational communication	3.75	1.017
Assets: customer capital; corporate culture; human capital; intellectual capital; social capital	3.71	.965
Managing KM environment: creating pro-sharing culture; employing knowledge friendly strategies; formulating policies to support KM	3.67	1.089
Communities of practice (communities of interest, online communities, virtual communities, etc.); cultivating and developing communities; community-based knowledge initiatives	3.67	1.089
KM implementation: knowledge vision; KM value proposition; business case; communication plan; communication techniques	3.61	1.002
KM readiness assessment: business culture; technology level; organization environment	3.57	.964
Knowledge organization schemes; classification schemes; controlled vocabularies; taxonomies; ontology; and topic maps	3.57	1.044

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KM roles and responsibilities; KM champions; knowledge workers; KM stewards; KM professionals competencies; education and training	3.57	1.153
Knowledge applications; business intelligence; competitive intelligence; customer relations; codification and capturing; e-business; e-government; e-citizen services	3.54	1.014
Social networks (organizational networks): social network analysis	3.51	.903
Knowledge transfer practices: mentoring; guided experience; simulation; guided experimentation; work shadowing; paired work	3.51	1.206
Knowledge transfer processes: identifying the knowledge holders; motivating knowledge workers share; designing sharing mechanism; executing transfer plans; measuring the transfer	3.47	1.046
Measurement of knowledge management: performance measures and KM metrics (KPI and ROI); intellectual capital methods; market capital methods; scorecard methods	3.47	1.174
Metadata; knowledge representation	3.37	1.038
Infrastructure services: intranets; portals; web sites; enterprise information systems (enterprise portals)	3.33	.887
Information architecture; knowledge architecture; enterprise architecture	3.33	1.071
Customer relations management systems; content management systems; document management systems; records management systems	3.30	.839
Collaboration: collaborative decision making; collaboration services; formal and informal	3.29	1.045
Supporting tools: blogs; wikis; data warehouses, etc.	3.27	.940
Information extraction; automatic categorization; summarization	2.86	1.167

Designing Syllabi

After designing curriculum, the educators need to develop syllabi around a standard template outlining the ingredients of a course in terms of course objectives, topics, readings, course requirements and evaluation mechanics and formulae. There should be a mechanism of overseeing the process of syllabi development and priding feedback to the designers. The process is intricate and complex, sometime compromising claims of academic freedom and autonomy.

Courses need to be divided among faculty for developing syllabi, keeping in view their areas of specialization. No program can claim to have expertise in all the areas in which course might

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be offered. Here employment of adjunct and visiting faculty and using inter-disciplinary collaboration might be some practical choices.

Concluding Remark

This paper deals with only two of the four challenges that were listed for managing change from LIS to IM titles. Other two factors are equally important and need to be examined rigorously for instituting formal program of development of human resources in Pakistan. Experts may benefit from the available models elsewhere, yet they have to adapt only those aspects that are relevant in the national context.

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