Reinforcing LIS education in the digital age: international cooperation for educating the new professionals

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Abstract. International cooperation can help reinforce the education of new information professionals. Results of the IFLA Section Education and Training (SET) are analysed together with those drawn from professional literature, for planning the international frame of university education for Library and Information Science, together with the current tendencies of change and with the indications which emerged for a curriculum for digital library.

Keywords: Curriculum for digital library; International recognition of qualifications; Internationalisation of LIS education

1 Introduction

The present major global educational discourses are about the knowledge economy and technology, lifelong learning, global mobility and neoliberalism. This international scenario has an impact upon Library and Information Science (LIS) education, which must aim at greater competitiveness, adapting to the labour market, and seeking to offer transnational courses in order to counterbalance the loss of students in the internal market. One answer to these threads is to develop curricula with an international dimension, aimed at preparing students for performing in an international and multinational context, and designed for domestic and / or foreign students.

In this presentation we wish to present a different aspect of the internationalisation of courses: the point we intend to demonstrate is that the internationalisation of education can assume a role of fundamental support to reinforce and renew the LIS curriculum How can internationalisation help to strengthen LIS curriculum? There is a need for LIS curricula rich in international and global content and there is a need for collaborative structures around the world, such as building LIS university communities and applying to International Associations.

1.1 Approaches to internationalisation

There are different approaches to the internationalisation of the LIS curriculum. An approach to international education is to pursue the purpose of creating networks for the expansion and distribution of LIS programmes, also using distance education. Emerging forms of instruction include inter-university partnerships where students from one institution may take courses for credit at

another LIS school, or through collaboration with universities in other countries.

This trend in Europe can be evidenced as a form of "Internationalisation at Home" and is based on the harmonisation of curriculum in twin or joint courses. Virkus and Tammaro (Tammaro and Dixon 2003; Virkus, Tammaro 2005; Virkus 2007) have tried to delineate functional models and requirements, in order to obtain expected results from twin/joint courses. Facing difference of values, administrative procedures and professional qualifications in Europe, how is it possible to coordinate and preserve these differences while moving toward the attainment of common objectives? The choice of the consortia for joint courses was the agreement upon the professional profile to educate.

The most prevalent answer to change that is evident in LIS education programmes can be pointed out regarding the continuous addition of new specialised courses. LIS schools are providing multiple courses within specific subject areas (e.g. health informatics, law librarianship) or are offering flexible programming so that students have choices within the core or can tailor their programs according to their own specific interests. This tendency especially seems to answer the demands of the labour market and competitiveness in the context of different education offers. We observe the renaming or retooling of traditional LIS courses, too, such as cataloguing, classification and reference, or redesignating them as electives instead of core. In the United States, WISE (Web based Information Science Education) brings together LIS schools to broaden the educational opportunities available to their students. The vision of this initiative is to provide a collaborative, cost-effective distance education model that will increase quality, access, and diversity of online education opportunities.

Often internationalisation efforts are related to cooperative efforts which bring an international dimension to the LIS curriculum, sharing a common understanding and triggering the debate about the present challenges, using Conferences and International Library Association, such as IFLA. The aim is that of situating the LIS curriculum studies globally and understanding of curriculum both as an international (global) phenomenon and as a local, situated practice. The major institution contributing to such LIS international educational discourses and actions is the Education and Training Section (SET) of IFLA. Other international Associations are ALISE that has developed Kaliper project (2000), Euclid which has developed the European curriculum reflections project (2005), A-Liep that organises regular Conferences. The results of IFLA SET in particular will be analysed together with those evidenced in professional literature, in order to trace a pattern of the current tendencies of change and highlight the indications that emerged for a curriculum for digital library.

2 IFLA Education and Training Section
The IFLA SET from its beginning has been a most active one not only within the IFLA system but also in its relationships with the organisations outside with similar concerns on their agendas - especially FID's Education and Training group (now closed), ICA SAE (International Council Archive Section Education) and UNESCO.

The activities of SET can be classified in three groups:
1. curriculum and quality of the LIS courses;
2. a record of all programmes of professional education;
3. LIS professional qualifications and their recognition.

2.1 "Core" Elements of the LIS curriculum

In a first phase, SET tried to work toward worldwide "harmonization" and integration of education for library and information science and archives. This activity had its most important moment in the International Colloquium "Harmonization of education and training programmes for library, information and archive professionals" at London in 1987 (IFLA 1991). Subsequently, the idea of a single curriculum was abandoned and an attempt was made to agree upon "Guidelines for Library and Information Science (LIS) programmes"[1]. The Guidelines, which are constantly updated, have the objective of giving an orientation to education programmes, though remaining on a general level. In this case the "core" is identified as that which characterises the profession, not changing in time or place, together with the minimum requisites regarding the quality of teaching.
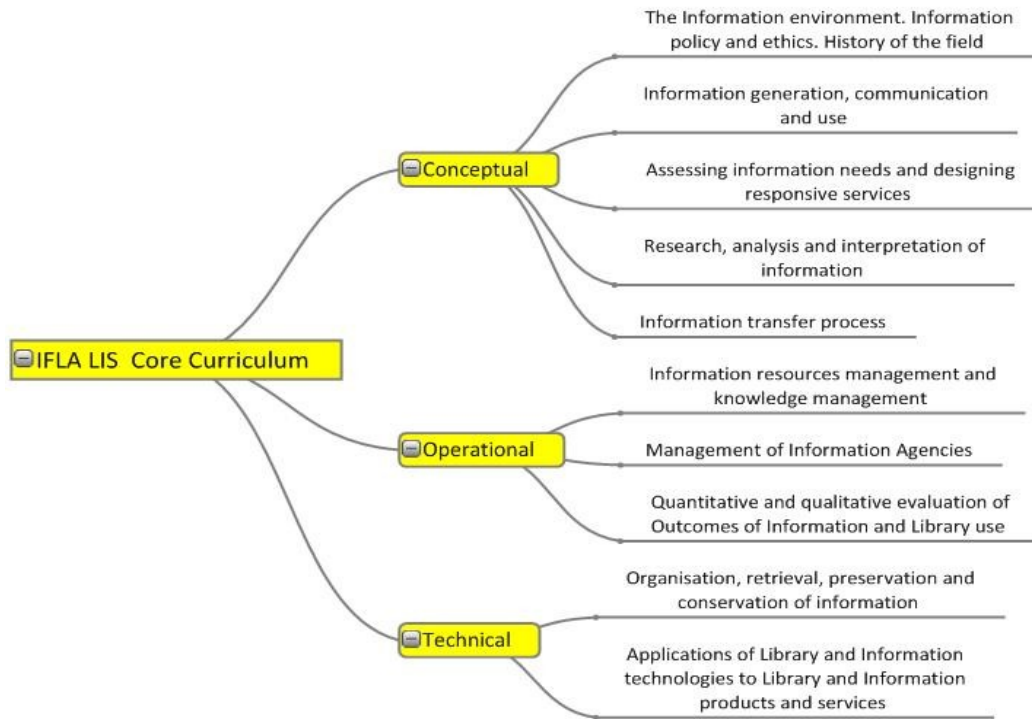
The core elements of the curriculum proposed by IFLA are displayed here in a map (Fig. 1), where they have been organised in three groups relating to conceptual knowledge, professional capabilities and technological and technical competencies.

The conceptual reference model for curriculum is based on the prevalent model of information science and follows the information cycle. This cycle comprises the phases of the information transfer process, which, although somewhat differing in various authors, includes (Lancaster 1993):
- selection/creation of resources;
- organisation, indexing, storage;
- dissemination, use.

Fig. 1 IFLA "core" elements of LIS curriculum

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1   Evelyn Daniel, Susan Lazinger and Ole Harbo on behalf of IFLA's Education and Training Section have published in 2000 the Guidelines for Professional Library/Information Educational Programs. Available:<http://www.ifla.org/en/publications/guidelines-for-professional-libraryinformation-educational-programs-2000>

IFLA LIS Core Curriculum

- **Conceptual**
  - The Information environment. Information policy and ethics. History of the field
  - Information generation, communication and use
  - Assessing information needs and designing responsive services
  - Research, analysis and interpretation of information
  - Information transfer process
- **Operational**
  - Information resources management and knowledge management
  - Management of Information Agencies
  - Quantitative and qualitative evaluation of Outcomes of Information and Library use
- **Technical**
  - Organisation, retrieval, preservation and conservation of information
  - Applications of Library and Information technologies to Library and Information products and services

User studies, information environment and information policy are included in the conceptual knowledge of the professionals; user studies in particular must be based on the ability to apply a research methodology. In the Guidelines and Conferences that SET organises every year the importance of user studies has been emphasised: these subjects should always be considered in curriculum development.

The professional capabilities that are required of professionals are described on a whole as the Management of Information. For the teaching of management of libraries and information centres, SET has drawn up the "Guidelines for the teaching of management" by M. Tees[2]. Management is linked to the evaluation and constant monitoring of procedures and services, with the aim of guaranteeing the institutions' efficiency. Different approaches can be recognised in the focus of LIS programmes. The range of activities to foresee is very wide, and it goes from the management of a collection of different typologies of resources to knowledge management. A more traditional culture is recognised in an archives approach to the collection; a diverse culture is evident in knowledge management, where there are different values, different features in which reference context of the institution, economic approach and resources have a greater impact on services.

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2   The Guidelines on the teaching of library management had been under preparation for some years and were finalised and published in IFLA Journal, 19 (3): 292-321 (1993). They were then updated in collaboration with the IFLA Section Management and Marketing. Savard, R. (2001). Education and research for marketing and quality management in libraries. Satellite meeting, Quebec, August 14-16 2001.Munich: KG Saur. 43-65. (IFLA Publications; 99) ISBN 3-598-21829-X.

Adapting the curriculum for librarians to the technological qualifications required of professionals has been a problem which SET has dealt with again and again in its conferences, publications and activities. In recent years technology has been applied to the entire information cycle in a constantly increasing way, comprising digital resources, the organisation procedures for these resources, extending to include the access services and intermediation with users. Thus there is a close combination of technologies and professional capabilities as emphasized, for example, by information retrieval and indexing of information resources. The education necessary for providing students with the proper skills has been analysed by SET in specific studies. One good example relates to the awareness of the use of information technology as described in an article by Lazinger and Harbo (2002) and another study by Weech and Pors (2006).

To compare different education programmes, and to aim at the continuous improvement of university education, common transparency and quality criteria of courses are necessary. The minimum quality requisites are an integral part of the IFLA SET Guidelines. The quality systems being used by different nations have been analysed by Tammaro (2006), who pointed out that these depend largely upon the national Government context. An emerging issue in the international debate is innovation in pedagogy. IFLA SET Guidelines include indications in the development and dissemination of teaching methods and teaching materials. The essential argument is that teachers can improve the learning of their students if they seek to enrich the wider student experience and create opportunities for and reward higher order learning activities. This task requires us to make a clear distinction between theory and praxis, while at the same time strengthening the notion that praxis must be informed by theory in order for professional work to be undertaken effectively: there must be an understanding of why the work is being done at all.

In addition IFLA SET has attempted to complete and update a record of institutions which offer LIS education. The "International Guide to Library and Information Science Education" was agreed upon for publication which occurred in 1985 when it was published as IFLA Publications no. 32. The World Guide to Library, Archives and Information Science Education, edited by J. Riss Fang, Robert Stueart and Kulthida Tuamsuk was published in 1995 as no. 72/73 in the IFLA series. The third edition of the World Guide to Library, Archive and Information Science Education by Axel Schniederjürgen (ed.) has been published in 2007 as no. 128-29 in the IFLA series.

2.2   LIS professional qualitifcations and recognition

From the beginning IFLA SET established that university education was necessary for access to the profession. and that the Diploma should be a guarantee of professional competence[3]. This initial level of professional qualification can be followed by a postgraduate Master's degree level and a subsequent Doctor's degree level. The curriculum delineated in the IFLA SET Guidelines described above refer in particular to the Master's level, considered to be the professional level. Subsequently, upon completion of the study on the quality indicators, the Section published the Equivalency Guidelines by Weech

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3   A first project 'Equivalency and reciprocity' was completed and a report by Fischer, Fang and Nauta
    was published in IFLA Journal 13 (2), 133-140 (1987)..

and Tammaro (2009) which gives a framework of criteria, standard and procedures for assuring transparency and facilitating cooperation for quality assurance.

The level of professional qualification is linked to the roles and functions of different responsibility in society. The role of the professional in the Society of information has been indicated as an active role which does not limit itself to the traditional one of simple intermediary in the communication of information with an extension to all information professionals. As a matter of fact, an innovative approach to the profession sees the digital librarian committed to the social functions of facilitator in the community where there are libraries and information centres, supporting learning processes, active citizenship and integration in a multicultural society. Besides, because of the greater complexity of the digital environment, the new role is no longer linked to the library profession but it extends to all information professionals, with emerging difficulties linked to the convergence of professions up till now distinct one from the other and with their professional identities.

The conceptual model based on the creation and communication of information, indicated in the SET Guidelines and illustrated in Fig. 1, seems to still be suitable. However the curriculum for digital library must be strengthened in the theoretical structure to adapt the offerings of courses to the new needs of the digital era. Meadows (2008) points out that the concern of the information scientist has traditionally been with the later stages of the chain – with organisation and storage in libraries and information centres, and with retrieval and use – but that there is, in fact, justification for study of all parts of the chain from its beginning. We also have to restate the social responsibilities which the new professionals respond to, and how they can do this work, thus clarifying the role and functionalities which are basic or essential to all information professionals. The development of a distinct core in the digital era covers cognitive and social aspects of how information and knowledge are created, organized, managed, disseminated, filtered, routed, retrieved, accessed, used, and evaluated.

In the broader institutional context of the digital library, the organisation of the resources and services are now related to the institutional infrastructure. The digital librarian creates an intellectual structure for digital objects and collections, expanding the possibilities of sharing, accessing and re-using the resources. As a consequence, the access is completely disintermediated and the Web interface replaces the librarian. Scholars were the first to use this opportunity, for enhancing their research in the University. The search engine and the portal are the new tools for interaction. However, there is an extension to information retrieval, with new functionalities and opportunities such as re-use and manipulation of resources, including virtual collaboration and communication between users. The reference service became more important than before.

The digital library evidences the problem of the socio-technical systems: this is not a technical problem, but a social one.

3 Innovation of LIS education in the digital era
This part of the presentation is based not only on the work of IFLA but especially on the debate of numerous international conferences, on the research studies of

Professional Associations such as ALISE, EUCLID, A-LIEP, and on professional literature. As in many parts of the world, creating, storing and diffusing digital information occurs on a daily basis, and digital libraries constitute an important component of this virtual information environment. Various issues have arisen and demanded consideration and investigation.

3.1 Interdisciplinarity

In the digital environment the interdisciplinarity and multidisciplinarity of the digital librarianship is seen as positive and desirable.

The first requirements of interdisciplinarity pertains to Computer science knowledge. The knowledge of technologies is not limited to the simple skill of using software, but encompasses different proficiency levels. A problem to be faced concerns the technological background of the digital librarian as well as the difficult equilibrium between information science education and library science education. Saracevic (Saracevic, Dalbello 2001) has defined the two backgrounds as Venus (librarian approach) and Mars (information science approach). We might ask ourselves: Must an IT expert be responsible for the digital library? Or rather must there be a librarian with sufficient skills in information science? Professional literature emphasizes a professional profile with both backgrounds, but to what consequences would this lead? A lowering of the professional level of the digital librarian, who becomes a good technician to whom the correct functioning of the information systems can be entrusted? Or rather a high level professional with leadership capacity as well as sufficient knowledge of technologies to be used and the opportunities that these can give for bettering existing services and creating new services?

In Table 1 are listed the technological skills which some authors (Tennant 1999; Tennant 2004; Choi, Rasmussen 2006) have defined as important for the digital librarian.

Table 1 Interdisciplinarity of the background of the digital librarian	Tennant 1999, 2004	Choi, Rasmussen 2006
Creation/Acquisition	Optical character recognition, Digitization as images, technologies of images, various metodologies of digitization Markup language: HTML, SGML, XML, Macromedia etc.	Web marking languages Technical and quality standards
Organisation Memorisation	Cataloguing and metadata Capturing metadata	Construction of data bases and systems for the management of data bases Information and

	Familiarity with programming languages (but not full time) Knowledge of open source software like Greenstone o DSpace Technology of data bases and indexing, with a variety of instruments from simple information retrieval to relational data bases or systems of object oriented data bases Web and Internet technologies	software architecture
Distribution, Access	User interface design: the digital librarian must be able to write the functional specifics Team work with other professionals for obtaining the desired aim in a user friendly interface	Web design

Interdisciplinarity has been extended to other disciplines, with the consequence of the infusion of multidisciplinary perspectives into LIS curricula, e.g. from sociological, economic, legal, cognitive and other disciplinary theories. There is another aspect of this multidisciplinarity. We can, in fact, say that in all disciplines one has to know how the information is structured and organised. And so, we can speak of an interchange, as information science can be spread in all subjects.

This tendency reaches its peak by dropping the L-word and introducing the I-word in the i-Schools movement: the transferability of library skills to other situations and information problems. Further studies and research are necessary to understand the extent of this change which interrupts a continuity that until now existed between library education and the profession, as will be described in the next section.

A first impact of this extension from education to information professionals is evident in the accreditation systems of courses: which professional association must be involved? This problem introduces the next part of this presentation: the tendencies and different solutions adopted to manage change in the profession.

As already briefly emphasized, LIS curricula are addressing broad-based information environments and information problems not only the library. But this leads to the need to evidence that which, on the theoretic and general level, unites many diverse specializations. LIS curricula incorporate perspectives from other disciplines, but a distinct core has taken shape that is predominantly user-centred. This is the development of a distinct core: the central conceptual domain covers cognitive and social aspects of how information and information systems are created, organized, managed, disseminated, filtered, routed, retrieved, accessed, used, and evaluated. What we wish to point out is that we must not only limit the strengthening of LIS courses in the technological aspect. Together with a greater technological knowledge, the new professionals need greater conceptual knowledge.

4. Reinforcing conceptual knowledge in digital library programme

We will start from what is covered in the existing DI courses in the world and from the results of research in digital library. A large amount of literature on education for the digital library exists. The study prepared by IFLA Section Education and Training on Digital librarianship (Weech, Pors 2005), the study carried out by EUCLID in Europe (Kajberg , Lorring 2005; Manžuch, Vatanen et al. 2005) and the results of the study carried out in the United States by Pomerantz and others (Pomerantz, Sanghee et al. 2006; Pomerantz, Wildemuth et al. 2006). In addition to these international studies, the author analysed the professional literature which dealt with this subject (Atkinson 1996; Rowlands and Bawden 1999; Spink , Cool 1999; Walton , Edwards 2001; Coleman 2002; Varlejs 2003; Bawden, Vilar et al. 2004; Gorman 2004; Liu 2004; Ashcroft 2005; Audunson 2005; Yang , Fox 2006).

Weech observes that the three most common elements in Digital Library Curriculum are Computer Science, Library and Information Studies, and Communication. There are a scattering of other elements, such as sociology, information technology, medical informatics, and so on. But for the most part, Computer Science and Library and Information Studies seem to have the strongest hold on what is taught for educating digital librarians.

At the end of IFLA study, Weech wonders:
- Would the recommended digital libraries curriculum increase Library and Information Studies (LIS) fragmentation?
- Would an approach that integrated Digital Librarianship (DL) into the standard LIS curriculum make a separate DL program unnecessary?
- Would a separate program for DL merely split LIS graduates into traditional and Information Technology-intensive roles?
- Should Library and Information Studies or Computer Science faculty teach in the DL program?
- What is the appropriate level (UG, Graduate, Post Master's) to teach the DL program?
- What balance should there be between "Hands on" vs. Conceptual topics in DL programs? (Should emphasis be on tools and technologies or the environment and context?)

These questions may be related to the current issues in LIS education: what is the right balance between IT and Library background? is there a risk of an

excessive fragmentation of LIS curriculum in specialisation? Could we solve the problem of theory vs. practice?

Conclusion
This presentation has sought to demonstrate the support that international cooperation can give for strengthening LIS education. Digital libraries are not only technological systems and without support from professionals such as digital librarians, cannot bring about the social changes so desired by governments. We have outlined the social responsibilities which this profession responds to, thus clarifying the work that is basic or essential to all information workers. It points to some solutions which have been adopted by schools of librarianship, many of them involving collaboration with other disciplines to produce the required depth of knowledge needed to digital librarian. It also calls for changes in the schools' approach to teaching, learning, and research, and in the practitioner community's support for education in general and lifelong learning in particular.

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