# Adapting LIS education to the digital age:

# co-operation and internationalisation for innovation

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# **Abstract**

Internationalisation in Library and Information Science (LIS) education, is becoming a key issue for LIS higher education in Europe. The Bologna process framework means the government support for putting together best educational experiences and expertise of European LIS schools. European Commission higher education programs (SOCRATES, TEMPUS and ERASMUS) could provide adequate financement for LIS schools networks (for example for research or particular agreement on competencies required to digital librarians) and also could support joint courses (Erasmus Mundus).

This paper seeks to provide evidence about the impact on innovation that co-operation and internationalisation could have on LIS schools, applying the Adler model of internationalisation development and inter-cultural issues. It describes three case studies in Italian LIS Schools (Padova, Siena-Arezzo and Parma) and an investigation of the intercultural achievements of the joint Master course held by Parma (IT) and Northumbria (UK) Universities. The next step in education for digital librarianship appears to be the development of special programs and specializations based on co-operation and internationalisation of LIS schools in Europe, integrating research and education best practices. The conclusion deals with the possible impact of a LIS schools international programme for digital library education.

# Introduction

There is a shared interest in the way in which Library and Information Studies (LIS) Schools respond to a rapidly changing library environment for the impact of information and communication technologies, and in particular their strategic planning about an uncertain future. The article arguments that this threat, leading to the closure of many LIS schools, necessitates of an international approach, and the Bologna process is an important factor supporting the internationalisation of European higher education institutions. However, progress within the LIS educational community in terms of international cooperation and coordinated curriculum development appears meagre, also because the internationalisation theoretical concept is not well understood. Active cooperation and internationalisation efforts within the European LIS education world must be initiated for achieving innovation in LIS curricula, considering internationalisation opportunities and intercultural issues.

# 1. Internationalisation

Internationalisation<sup>1</sup> means different things to different people and there is a great diversity of interpretations, but is not the purpose of this article to deal with the different meanings and uses of

<sup>&</sup>lt;sup>1</sup> Internationalisation is often confused with comparative education, globalisation, regionalisation, transnational education, intercultural education.

the vocabulary of international education. The purpose here is to look at the concept of internationalisation, including a definition of the different approaches, for an exploration of why it is important to internationalise the LIS sector for supporting innovation.

Internationalisation has been addressed by three different points of view:

- 1) The first approach sees the inclusion of the international dimension at university or LIS school level, as part of the university/institution mission and is one of the many elements used for accreditation. Enrolment of international students is the specific aim, compensating budget shortcuts and losses of national students;
- 2) The second looks at specific programmes or modules for the internationalisation of LIS school i.e. staff and student mobility as part of the educational program, research projects in collaboration, internationalisation of the curriculum content, building thematic networks;
- 3) The third approach concerns the internationalisation of procedures, which are in general nationally based, as recognition of academic qualifications and quality assurance procedures. This approach is that of the Bologna process, which is presently the major process of higher education, reform in Europe. It takes its name from the Bologna Declaration<sup>2</sup>, which was signed in Bologna on 19 June 1999 by the Ministers of Education of 29 countries in Europe. The Bologna process is seen as the political support offered by European governments to internationalisation of higher education, underpinning internationalisation in promoting employability and competitiveness as a priority. The three-tier architecture of the courses, together with common principles and criteria for quality are some of the specific objectives to be achieved in 2010 for building the European Higher Education Area.

It is important to point out that these three approaches are not mutually exclusive but complementary. The typology reflects the three different levels, which are involved in the internationalisation of the LIS Schools: the national and European level (Bologna process), the university/college level (institutional strategy) and the LIS programme or course level. An European Area for Higher Education would require combined efforts at international, national and institutional level, to raise the quality level of education required by students and ensure a better fit between expectations of students and LIS schools learning offers. This typology reflects how complex and dynamic the concept of internationalisation is, including national policies and institutional processes together with the international dimension into the LIS programme.

The Bologna process wants to support networking (Haugh 1999):

"...Projects aiming at establishing or strengthening university networks"

and adds that higher education institutions:

"Should build network centres of excellence which respond to the most pressing training and research needs of the region. The transfer and exchange of knowledge and experience between higher education institutions and carried out in a spirit of solidarity should be the basis for these initiatives".

Examining the implications of the Bologna process for networking and quality improvement, it should be defined as a task for each LIS schools administrators and LIS educators to clarify possibilities and barriers to internationalisation of courses and to discuss the steps to be taken.

<sup>&</sup>lt;sup>2</sup> The formal name of the Bologna declaration is the "European Higher Education Area".

#### 1.1 International and intercultural issues

International dimension of higher education is always interconnected to intercultural issues in the organisation of co-operative programme. One of the barriers to internationalisation has been seen as the risk of loss of national identity and culture. However if one interprets internationalisation as a response to the de-nationalisation of globalisation, then internationalisation can be considered as a way to promote and strengthen the national identity (OECD 1999). The working definition of internationalisation adopted in this article is as follow:

"Internationalisation of higher education is the process of integrating an international/intercultural dimension into the teaching, research and service functions of the institution" (OECD 1999).

Both an international and an intercultural dimension is included in this definition, to emphasise the fact that internationalisation has an impact on intercultural relations of different ethnic groups. Hofstede (1980, 1991) ground breaking investigation on cultural differences appear to be especially interesting in the management of LIS schools international programme, for the theoretical approach to the problem of cultural diversity.

The underlying concept of internationalisation used in this article is based on the developmental model of internationalisation and of intercultural sensitivity of Adler (1997). As Adler points out in International Dimension of Organizational Behaviour (1997), global leaders tend to recognize the value of cultural differences but the synergistic integrated approach is still much less practised than the parochial or the ethnocentric approach, which is based on the assumption that our way is the only way. By synergistic approach, Adler means the approach to incorporate the values of all cultures involved within an organization. The development model of internationalisation sees an evolution from the ethno-centric stages where there is the dominance prospective to the ethnorelative stages leading to integration and synergy. There are several concepts in the internationalisation model of Adler, as the idea of internationalisation as a dynamic continuous process and not a set of isolated activities. The first ethno-centric stages of internationalisation have been defined as: 1) denial in which there is separation and isolation, 2) defence in which a sense of superiority or inferiority prevails, 3) minimization where a transcendent or utopic universalism brings to superficiality. The ethno-relative stages are: 4) acceptance which is based on mutual respect for differences in behaviour and values, 5) adaptation where pluralism and empathy are expected, 6) integration which wants to achieve synergy through constructive marginality and conflict management.

High productive or less productive international team working together depends on how they manage diversity. If the common task requires performing a highly specialised role it is better to have a diverse team. Cultural diversity provides the biggest potential benefit to international teams, with challenging tasks that require innovation. The conditions for combining internationalisation and innovation have been identified by Adler (1997) as follow:

Task	Innovative	Routine
Conditions	Differences recognized	Differences ignored
	Members selected for task related	Members selected on basis of
	competencies	ethnicity
	Mutual respect	Ethnocentrism
	Equal power	Culturalism dominance
	Super ordinate goal	Individual goals
	External feedback	No feedback

Pors and Johannsen (2003) have investigated the assumption of Danish librarians as an especially internationally oriented group, but their survey did not support this assumption. In Library and Information Science education, Kajberg (2003) outlines the major collaborative schemes and initiatives concluding that there are not convincing results. Why is there such a dilemma? What has hindered global LIS managers and educators from practicing what they believe in?

In time of economic globalisation, with cross country mobility of the work force and with more occupational opportunity in multinational companies, LIS schools in Europe should start to think and really act globally (Kajberg 2003). Using Adler internationalisation development model, international co-operation in LIS education seems to be superficially understood, limiting it to comparison efforts but essentially with a denial or a minimization approach. The working definition of internationalisation adopted in this article attempts to build on the framework of the theoretical internationalisation concept, for giving a rationale to a really synergetic cooperation for course innovation in LIS. A multidimensional approach, together with an international organisational culture creation is needed for successful LIS programme.

The Bologna declaration is a big challenge towards a synergetic approach to internationalisation of LIS schools, as defined earlier. Bologna process framework means the governments support for putting together best education experiences and expertise of European LIS schools. Bologna process pushes to a real integration stage, valuing differences and appreciating and managing diversity, but it needs LIS educators leadership and building an intercultural organisation to be realised

European Commission higher education programs (SOCRATES, TEMPUS and ERASMUS) could provide adequate financement for LIS schools networks (for example for research or particular agreement on competencies required to digital librarians) and also could support joint courses (Erasmus Mundus). European ERASMUS programme have prepared international LIS educators and students with acknowledgement and awareness of different cultures, leading to the acceptation of diversity in attitude and behaviour. Now LIS schools have to build academically on the disciplinary context, with a focus on learning outcomes, and at the participation level of integration. An important factor related to the labour market is the identification of competencies that are considered essential for new graduates in LIS to function in a European labour market environment.

In addition, LIS educators have the opportunity of international meetings and conferences organised by professional organisations as IFLA (Pors 2002).

#### 2. Internationalisation in LIS schools

Internationalisation in LIS education, including mobility of academic staff, students and professionals, recognition of qualifications, quality assurance improvement, is rapidly becoming a key issue in the analysis of LIS higher education in Europe. There are a number of generic approaches that LIS schools are using as they plan and implement an institution wide strategy for internationalisation. The focus of the article in on international LIS courses which are defined as

"those with an international orientation in content, aimed at preparing students for performing (professionally/socially) in an international, multicultural context, and designed for domestic students and/or foreign students" (Kameoka 1996).

It is based on describing internationalisation in three Italian LIS Schools (Padova, Arezzo-Siena and Parma) and in particular on an investigation of the intercultural achievements of the Joint Master in Information Studies held by Parma (IT) and Northumbria (UK) Universities. The sample was

chosen through a first investigation of the international courses taught in Italian LIS schools, including courses started before the "Bologna process" (as the European Master for School Librarians) and courses "in strict sense" international, following the "Bologna process" objectives (European Master for Conservation and Management of Cultural Heritages and International MAMSc in Information Studies)<sup>3</sup>. The sample chosen for investigation of the internationalisation applications in Italian LIS schools is composed by:

European Master for School Librarians<sup>4</sup>, University of Padova, started in academic year 1997/1998;

European Master in Cultural Heritages<sup>5</sup>, formal network of French, Spanish and Italian universities co-ordinated by University of Venice, started in academic year 2000/2001;

*International MAMSc in Information Studies*<sup>6</sup>, joint course of English and Italian universities, started in academic year 2000/2001.

LIS schools in Italy have been involved in the current reform of teaching in higher education after the Bologna Declaration. The Bologna process has had big implications for the Italian LIS academic world for the debate about the relationship between higher education and professional life, in particular concerning the issue of lifelong learning and employability. As Feather states<sup>7</sup> in Italy before the reform of higher education (Feather 1990, p. 114):

"No formal qualification are obtained and there is reason to believe that some of these courses do not achieve the high standards to which the best of them aspire. The consequence is that there is apparently almost no serious education for librarianship in Italy, in the sense in which it is understood in most of the other member states. There seems to be an even greater tension between advocates of "cultural heritage" and "information science" education than in other countries and the result is confusion and under-provision. Indeed it is not unfair to say that libraries, the library profession and the practice of librarianship are seriously underdeveloped in Italy to an extent which seems unparalleled elsewhere in the Community".

The weak international activities attempted in the past have done little to enhance library education in Italy, but the opportunity now exist to accept the implications of an European Higher Education Area, driven by the Bologna process. A positive element (Petrucciani 2001) is the results of the teaching reform in Italy for LIS schools: the establishment of a specific degree with legal value, at post-graduate level (specialist degree). The new sector class is 5/S Archivist and Librarianship and in this framework, LIS schools are autonomous in introducing an extensive range of specialised disciplines. This could have a fundamental change in the labour market, as for the first time an academic specific qualification could be requested by employers.

The overview of the key issues in internationalisation is analysed through the presentation of the three international programs realised in Italian LIS schools. The aim is to identify, define and analyse relevant issues and solutions in internationalisation of library schools in Italy and to provide responses applicable not only to the Italian context, as they represent three types of international achievements:

- *students/teachers mobility and exchange*, of which the European Master for School Librarians is an example;

<sup>&</sup>lt;sup>3</sup> The investigation is based on the Master dissertation "Internationalisation in Italian Library and Information Science Schools: trends and issues of the Bologna process" by Anna Maria Tammaro, Northumbria University 2001

<sup>&</sup>lt;sup>4</sup> Course website at: http://www.formazione.unipd.it/fbs2000/f.html

<sup>&</sup>lt;sup>5</sup> Partners universities are Caen (France), Salamanca (Spain), Cassino, Siena-Arezzo and Venice (Italy). Course website at: http://www.unicas.it/master

<sup>&</sup>lt;sup>6</sup> Partners universities are UNN at Newcastle (UK) and Parma. Course website at: http://aldus.unipr.it/master

<sup>&</sup>lt;sup>7</sup> The paper cited draws upon work done by Feather and Wallace for a project funded by the British Library Research and Development department in January to March 1990.

- *twining agreement*: the same academic content has delivered in different LIS schools with mutual academic recognition of the title where education is sometimes provided by foreign teachers as in the European Master of Cultural Heritages;
- *joint course*, where all the course management from the design to the assessment is taking place by the network of LIS schools and this is the case of the International Master in Information Studies by distance learning.

The examination of the three international co-operatives courses identifies the shared purposes of all LIS schools involved: the innovation of curriculum, or reviewing and reinvigorating current ones, in an international context and starting programs at Master level (postgraduate, 2<sup>nd</sup> level). One can go on to point out additional characteristics that are shared: in all three cases the university affiliation not only raises a large expectation of quality but it also carries with it the necessary infrastructure: computer services, meeting facilities and libraries are available at university settings and they constitute the support system of the three programs.

There is however an important difference: two examples (European Master of Cultural Heritages, International MAMSc in Information Studies) are drawn from well-established network programs that have enjoyed stable leadership through a formal agreement between universities and are based on the Bologna process; one (European Master for School Librarians) is a collaborative approach, based on mobility and exchange of students and teachers but not on the Bologna process. This implies several differences on internal organisation and strong limitations in the international context of the European Master for School Librarians. With the mandatory application of Italian reform of 1999, the European Master for School Librarians has had to change its name in "Corso di perfezionamento" with 12 ECTS; the two networks of LIS schools, which have started from the beginning of the Italian reform, are running the third intake of their Masters with 120 ECTS. The organisation of the two networks of Italian LIS schools has involved universities administrations stimulating change in universities rules. That could mean a more structural and longer-term impact on the universities involved, whereas the effects of mobility and exchange of joint approaches are limited to individual students and teachers.

# 2.1 Factors of success

Factors of success can be identified in: innovation in curriculum, enhancement in productivity, staff development, quality improvement of learning and teaching, harmonisation of intercultural relations

Innovation in curricular is the main benefit of the three case studies which have started new programs, and not re-packaged old ones. It can be said that internationalisation today is imperative in information global profession and an international content is needed for LIS curricular, also if it is not the mobility in Europe the main reason. The core of the curriculum content in all the three courses, but with different percentages, is focused on IT impact on the profession. This is very important for Italian LIS schools, where it was feared that university courses would teach the subject from a purely practical point of view, with little scope for theoretical study and research. The three case studies demonstrate that a research-based education, which includes hands-on skills on IT, will hopefully produce candidates who are able to participate in the processes of change. The International MAMSC in Information Studies, in particular, as a good mix of theory and practice, teaches the "research method", for the first time in Italy.

The three international courses are offered by LIS schools as postgraduate Masters courses, both by individual universities and by consortia, in areas where there were no short, or separate, programme at this level. They are open both to students who have done their undergraduate studies at a different

institution or in a different country and are open to workers wishing to re-qualify their competencies. This improved productivity is a benefit for partners institutions, bringing more students and resources to universities. For the issue of sustainability, it should be said that all the three case studies at their start have had some financement from international and national agencies but the student's fees sustain them.

Staff development and improved learning is the other most important area, where results of internationalisation of joint courses can be measured, compared with their initial objectives and expectations. For example, the joint International Master in Information Studies has been created with the purpose of learning and teaching something new, as the application of research methods to LIS combined with an innovative course delivery by distance. Most important the innovation in course pedagogy of the three case studies can be considered a factor of success. In particular, the involvement of students in active learning methods with international stage periods (choice of the European Master for School Librarians and of European Master for Cultural Heritages) and students participation in the development of course content, through the application of the research methods to the Italian LIS context (used by the International MAMSC in Information Studies).

In the case of the joint course of Parma and Northumbria Universities (Dixon, Tammaro 2003), it can be demonstrated the importance for internationalisation success of the harmonisation of the intercultural relationship. This means to build a mechanism to resolve conflicts and gaining consensus with regular meetings, spend efforts for defining common strategy and involvement in course commitment together with clarity of expectations.

#### 2.2 Weaknesses

Improvements should be done in the future to the Bologna process requirements. Some weaknesses of the three case studies depend on the national regulations and cultural background in LIS together with the legislative and administrative context of Italian LIS schools. The interrelations between the three levels involved: international, national and course level, examined by the article, reveal partial achievements, especially for the joint course.

It can be said that while the higher education institutions look at financial and marketing indicators, harmonisation and synergy in the intercultural relationship contributes to overall performance and satisfaction of international courses and only indirectly to improvement in productivity. However it must be stressed that harmony between partners institutions and staff development should be considered as the foundation of the overall joint course performance and following university satisfaction. International joint courses has been seen as one of the major development of the Bologna process and their importance has been described in Tauch and Rauhvargers (2002). Although recent research has detected increased interest in joint courses, the intercultural aspect has not been analysed enough. International co-operation is strictly related to intercultural aspect, more than usually assumed; then more attention should be paid to inter-partner relations than to other issues such as administrative procedures and contractual obligations. Inter-partner relations can be called the soft dimension of the joint courses. In particular, different values and cultures have been evidenced in the Parma Northumbria joint course for the topic of quality control, which has been a source of considerable discussions, and it has needed a specific strategy formulation.

# 3. What international education for LIS?

Why internationalisation is important for library and information science education? If librarians and information professionals are to develop strategies for improving the

library/information institutions, they need to recognise the necessity of building international relationships, interdisciplinary links and networks, as well as understand their society's role.

The information professionals today are confronted with increasingly complex and conflicting missions: they must interpret the impact of change on the institutions that record and preserve the human knowledge, in ways that maintain links with their traditional mission, and, at the same time, integrate new tools, technologies, and concepts that appear to threaten the values that are inherent in the historic mission of professional librarianship and information science. The dual challenges of competing in a global world market and of the rapid technological advancements have necessitated a redesign of the role of information professionals into an innovative environment known as the digital environment. This environment requires a behaviour and orientation toward work that go beyond step-by-step task performance. It expects workers at all levels to solve problems, create ways to improve the methods they use, and engage effectively with their co-workers. Job-specific technical skills in a given field are no longer sufficient as employers scramble to fill an increasing number of interdependent jobs. This implies also the convergence and harmonisation of different careers as archivists, librarians, documentalists and information scientists. This continuous learning challenges intellectual capabilities and requires adjustments of mental models: information professionals must become reflective practitioners. Societal and professional development requires an entirely new perspective, new strategies and new skills on the part of information professionals.

Adaptation to the electronic information environment demands considerable re-education and learning with new combinations of experiences and skills. Graduates of today's schools find employment in the insurance industry, the film industry, the software development business, and other businesses created or transformed by the revolution in information technology. Seeing this diversification in the professional prospects of graduates, and challenged by the growth of information science in other schools of the university, library schools have desperately been seeking to redefine their roles and their curricula. The academic curricula must be flexible enough to support many different career tracks, and libraries are but one such track (Audunson R., Nordlie R., Spangen I. C. 2003).

At the same time that LIS schools are developing curricula to prepare graduates for a great variety of information related careers, libraries are working to integrate print-based and digital collections and services. Considerable funds are spent on research in digital libraries, drawing a large population to concentrate on various topics. Even more funds are spent on practical applications in building a variety of digital library collections, components and services. However in Europe the education for digital libraries has not received the same amount of attention as research, development and practical applications in digitisation. Many professionals think to re-establish the earlier in-house training programs in libraries as the particular skills needed in public, academic, or corporate libraries in the digital environment are probably best taught on the job. Unfortunately, in the last two decades, the state of library education has changed substantially. Many universities, especially those privately funded, have closed their schools of library and information science. Others have incorporated their library science curricula into other, related departments.

This complex situation pushes to innovation in curriculum and internationalisation seems the most appropriate solution to achieve it, creating synergy and integration of best experiences in Europe. The next step in education for digital librarianship appears to be the development of special programs and specializations based on co-operation and internationalisation of LIS Schools. Van der Wende (1996) has researched several international courses comparatively. She has used the rather broad OECD-typology of international curricula ranging from curricula with some international content, over curricula that address cross-cultural skills, to curricula leading to internationally recognised professions and special curricula designed for foreign students.

Internationalising curricula in joint courses can also be seen as something more comprehensive than developing curricula with international contents. The international harmonisation of curricula in twining courses for example is an important tendency as well.

Undoubtedly, the most powerful inducement to internationalising curricula should come from the growing impact of internationally organised professional associations. These international professional associations started to deal with issues of education and training, such as quality assurance, international minimum standards, criteria of professionalism, accreditation, etc. Some professions have been very active in this matter, such as the engineering, the medical or the legal professions. For LIS sector, there is the ECIA work on competencies (AIDA 2001), starting to approach recognition issues of professionals.

The benefits for students of an international course on digital libraries will be many. The preparation of graduates who have strong knowledge and skill base in intercultural relations and communications can be considered as one of the strongest reason for internationalisation. In much the same way, the synergetic approach to internationalisation should focus on the development of intercultural and international competencies of the individuals, students, staff and teachers.

Students, in the framework of the Bologna process, have the right to ask for academic qualifications recognised and accredited at national and international level. The recognition referred here means that students, as part of their Master participation, must gain credits and recognition of the academic title for continuing the studies in other universities. The accreditation referred here as certification of the quality, means that students, as part of their Master participation, should give evidence to employers of the professional qualification obtained, for gaining a job or advancement in his career.

Finally, it is important not to underestimate the impact of internationalisation in LIS sector. It will undoubtedly increase under the stimulus of the Bologna process, but the policy issues as recognition of qualifications and quality assurance need to be addresses together with intercultural and sectoral trends.

# References

Adler, Nancy J. International Dimensions of Organizational Behavior, 3. ed., Cincinnati, Ohio : South-Western College Publishing, 1997.

AIDA (2001) Euroguida I&D dei professionisti europei dell'informazione e della documentazione : versione ufficiale italiana a cura di M. P. Carosella e D. Bogliolo, Fiesole : Casalini

Allard, Suzie (2000). "Digital Libraries: A Frontier for LIS Education" Journal of Education for Library and Information Science. vol. 43, no. 4 (Fall, 2000), pp. 233-248.

Audunson R., Nordlie R., Spangen I. C. (2003) "The complete librarian – an outdated species? LIS between profession and disciplines", New Library World vol. 104 n. 1189 p. 195-202

Dixon, P. Tammaro A. M. (2003). "Strenghts and issues in implementing a collaborative interuniversity course: the International Masters in Information studies by distance". Education for Information. vol. 2/3, pp. 12-27 ISSN: 0167-8329.

Feather J. (1990), "The European future: the education and qualifications of the information professionals in the European Community", In Second International Seminar on Librarian Education, Barcelona 20-22 December 1990 p. 109-127 (draft unpublished)

Haug G. (1999) "Visions of a European future: Bologna and beyond, Maastricht: address to a conference of the European Association for International education" (EAIE): <a href="http://www.esib.org/prague/documents/bologna">http://www.esib.org/prague/documents/bologna</a> and beyond.htm Accessed December 15, 2004

Hofstede, G. (1980), Culture's Consequences: International Differences in Work-related Values, Sage Publications, London.

Hofstede, G. (1991), Culture and Organisations: Software of the Mind, McGraw-Hill, London.

Kajberg, L. (2003) "Cross country partnerships in international library and information science education", New Library World, Vol. 104 n. 1189, p. 218-226

Kameoka, Y. (1996) "The Chimera of the 'International University." International Affairs 75(1): 99-120.

OECD (1999) Quality and internationalisation in Higher Education, Paris, OECD

Liu, Yan Quan (2004) "Is the Education on Digital Libraries Adequate?" New Library World vol. 105, n. 1196/1197, 2004. p. 60-68.

Petrucciani A. (2001) La laurea in biblioteconomia: finalità e prospettive dei nuovi ordinamenti universitari, "Bollettino AIB" 41(2), p.145-155

Pors, N.O. (2002), "Perceptions of the quality of the IFLA conference in Glasgow", IFLA Journal, Vol. 28 No. 5/6, pp 328-35.

Pors, N. O. and Johannsen C. G. (2003) "Attitudes towards internationalisation in the library sector", New Library World Vol. 104, n. 1190/1191, p. 278-285

Saracevic, T. Dalbello, M. "A survey of digital library education", Proceedings of the American Society for Information Science and Technology, (2001), vol. 38, pp. 209-223

Spink, Amanda and Colleen Cool.(1995) D-Lib Magazine, vol. 5, no. 5, May 1999. pp. [1-7]

Tauch, C. and Rauhvargers, A. (2002), "Survey on Master degree and joint degree in Europe", European Universities Association

Van der Wende, M.C. (1996), Internationalising the curriculum in Dutch higher education: an international comparative perspective, Den Haag, NUFFIC.

Varalakshmi, R.S.R. (2003) "Educating Digital Librarians: Expectations, Realities and Future Perspectives." Malaysian Journal of Library & Information Science. vol. 8, no 2, pp. 43-52. December 2003.

Waters, Donald J. (1998) "What are Digital Libraries?" *CLIR Issues*, no. 4, July/August 1998. <a href="http://www.clir.org/pubs/issues/issues04.html#dlf">http://www.clir.org/pubs/issues04.html#dlf</a> Accessed December 15, 2004.