Trends in LIS Education in Singapore

Christopher Khoo Soo Guan, Associate Professor
Division of Information Studies, School of Communication & Information
Nanyang Technological University

Overview of LIS Education History in Singapore

The history of library and information science (LIS) professional education in Singapore is a relatively recent one. The only LIS professional education program in Singapore is the MSc in Information Studies program, established at the Nanyang Technological University (NTU) in 1993. A Certificate and Diploma program for training paraprofessionals was also established at the Temasek Polytechnic at about the same time. Prior to that, LIS professional training could be obtained through the postgraduate diploma program in library and information science conducted by the Library Association of Singapore from 1982 to 1992 (Thuraisingham, 1984 & 1989). The instructors in the diploma program were a combination of lecturers engaged from overseas library schools in United Kingdom and Australia, and local practising librarians. Many librarians also went overseas to obtain their professional library qualification, mainly in Australia, New Zealand, United Kingdom and the U.S. Others obtained their qualifications through the external Library Association (U.K.) and Australian Library Association professional examinations to obtain an A.L.A. (Associateship of the Library Association) or A.A.L.A. (Associateship of the Australian Library Association), until these programs were phased out around 1980.

The establishment of the MSc in Information Studies program at NTU was a culmination of three decades of effort by the library profession to establish a library school (Wee, 1980; Sabaratnam, 1989). According to Wee (1980), the first proposal for a library school was made in 1960 by the librarian of the University of Singapore to establish a library school in the university. Over the years, numerous manpower surveys were carried out to project the number of professionals needed in traditional libraries as well as non-traditional information environments, to persuade various authorities of the demand for professional library and information science training.

Sabaratnam (1993) reported that finally in 1989, at the request of the Permanent Secretary of the Ministry of Community Development, the National Computer Board set up a high-level committee called Programme for Information Management (PRIM) to review the issue. A task force was set up, led by the director of the IT Manpower Department, National Computer Board, to conduct a national manpower survey. The results of the survey confirmed the demand for information professionals in non-traditional settings. The PRIM report was

endorsed by the Committee on National Computerisation, and the Nanyang Technological University (NTU) offered to set up a part-time Master's program in the School of Applied Science. At the same time, two important policy documents were issued by high-level committees led by the National Computer Board:

- the IT 2000 Report (1992), which charted the development of Singapore's national information infrastructure to transform it into an intelligent island
- the Library 2000 Report (1994), which charted the development of library services to support Singapore as a learning nation and as a knowledge hub.

The MSc in Information Studies program is then seen as part of the "manpower infrastructure" development program to provide the trained information personnel to help transform Singapore into an Intelligent Island and a learning nation. With the setting up of the MSc program at NTU, LIS professional development has now centered on the MSc program.

Trends in LIS Curriculum in Singapore

The Division of Information Studies was set up in NTU School of Applied Science with 5 faculty members to offer the MSc in Information Studies program. This was a 2-year part-time program, in which students had to complete 6 core courses and 2 elective course, as well as a dissertation. A chronology of the milestones in the history of the program is given in Table 1. The major trends in the curriculum have been:

- a move from a predominantly library science program in 1993 to an information science program with particular strengths in information technology
- the development of a number of areas of concentration/specialization, and spinning them off to become separate MSc programs.

Khoo & Al-Hawamdeh (2000) identified the following factors that contributed towards strengthening of the IT component of the program:

1. The university environment and the parent school
2. The background and expertise of its faculty members
3. The local economy and job market
4. Student demands and expectations.

Table 1. Milestones in the development of the MSc in Information Studies program at NTU

1993	MSc in Information Studies program started as a 2-year part-time program, requiring students to complete 6 core courses + 2 electives + dissertation. 50 students were admitted to the program each year.
1997	Part-time "day-release" program for staff of Natural Library Board was introduced.
1998	New curriculum with 4 core courses + 4 electives + dissertation was introduced.
2000	A full-time program was introduced with 30 full-time students, in addition to 60 part-time students. A new curriculum was introduced with 3 core courses + 2 Group A electives + 4 Group B electives + dissertation. The number of applicants to the program rose to 400, and to 700 in 2001.
2002	The Division of Information Studies moved to the School of Communication Studies, and the school was renamed School of Communication & Information. An MSc in Knowledge Management program was introduced, in collaboration with the Civil Service College. The areas of concentration in the Information Studies program was revised.
2004	The dissertation requirement was made optional. In place of the dissertation, students can take 2 courses, 1 of which is Critical Inquiry involving a group research project. The core course, Information Users and Society, was changed to a Professional Seminar series with pass/fail grading.
2005	A new MSc in Information Systems program will be offered, in collaboration with the NTU School of Computer Engineering. A proposal for a multidisciplinary undergraduate program in Information is being developed.

The first two were internal factors. The School of Applied Science, in which the Information Studies Division was situated, was an IT school which was later renamed School of Computer Engineering. This and the fact that NTU was an engineering and technological university influenced the Information Studies program to become more IT-oriented rather than social science-oriented. The strength and interest of the faculty members in IT also contributed to the nature of the program.

In addition, several external factors have influenced the program. The limited number of library-related jobs made it necessary to train graduates for non-traditional information positions. The emerging knowledge-based economy, growth of the IT sector and government support for IT development gave rise to new-age or "new economy" information-intensive jobs which tend to require more IT skills. The perception of librarianship as a low-paying unglamorous job also made it necessary to focus on the new-age information professions to attract more and better-quality students.

The fact that many of the new-economy professions are really information professions has spurred the Division of Information Studies to "stake a claim" to the new professions, by devising a curriculum that equips our

students to work in the new areas, and compete effectively with computer science and management graduates for these jobs.

Annual surveys of applicants to the Information Studies program found only a small proportion who intended to work as librarians after graduation. Of the applicants for the year 2000 admission, only 12% selected the library science concentration. Of the applicants who were actually offered admission in 2004, fewer than 20% had selected the library and information service concentration. Fig. 1 shows the proportion of applicants admitted to the program who selected the various areas of concentration.
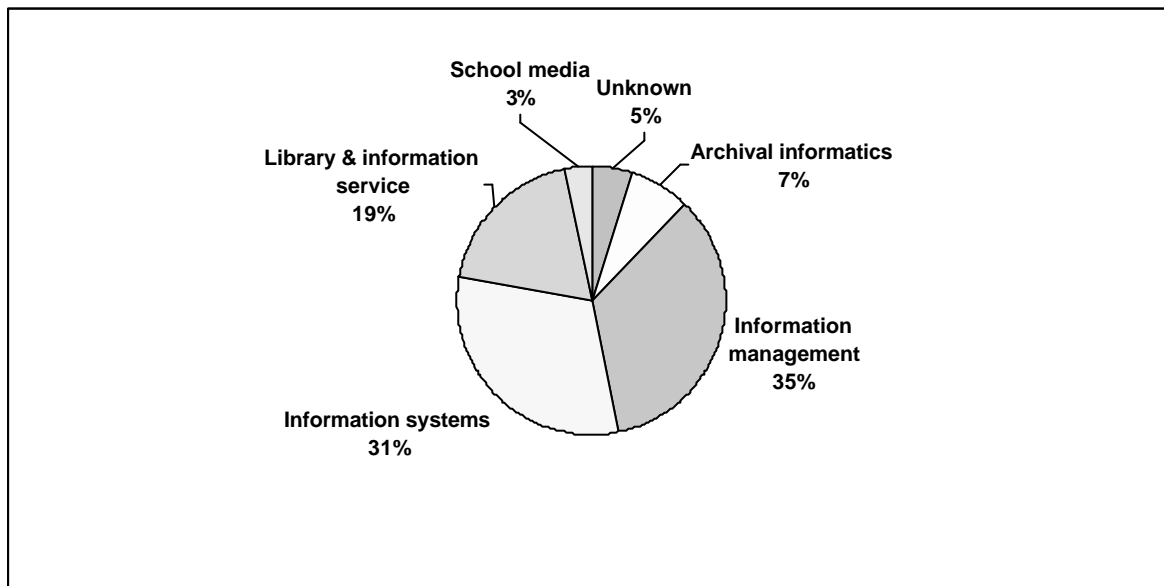

Fig. 1. The proportion of applicants offered admission in 2004 who selected various areas of concentration

From the beginning, the program has attracted both students who want to be librarians as well as IT professionals who want to learn the softer side of IT, including user aspects, applications and management. The library science-oriented students felt that there was not enough library science content in the program, while the IT-oriented students felt there was not enough IT. To meet the needs of these two groups of student, the curriculum was restructured in 2000 to offer two broad areas of concentration, and within each area a number of specializations:

Library and information services concentration

- Public libraries

- Academic libraries

- School libraries and media resources

- Corporate information services

Information management and systems

- Internet and multimedia-based information systems

- Information systems and products development

- Document and records management

- Knowledge management.

As a result, the number of applications to the program shot up to 400 in 2000 and 700 in 2001! More details of this curriculum revision was reported in Higgins & Chaudhry (2003).

In 2002, the areas of concentration were simplified into the following five areas:

- Archival Informatics

- Information Management

- Information Systems

- Library and Information Science

- School Media Resource Management

The decision to define areas of concentration and specialization has been a controversial one in the Division of Information Studies. The areas of concentration and specialization were defined to serve a number of purposes :

1. as a marketing tool to give the public a clearer idea what the program was about and what the strengths of the program were

2. as a guide to students to help them define a coherent program for themselves

3. as strategic directions for the program to focus on and develop more advanced courses in

4. as a guide in recruiting faculty.

A three-tier programme structure was designed to gradually prepare students for more advanced courses. The tiers were:

1. *Core courses* (3 courses): foundation courses that define the skills and competencies common to all the information professions

2. *Group A* electives (students select 2 out of 5 courses): foundation courses for the various concentrations/ specializations

3. *Group B* electives (students select 4 courses): more in-depth courses in an area of concentration/specialization.

The popularity of the revised program and the rising number of applicants exerted pressure on the Division of Information Studies to admit more students to the program. It was decided that the best way to develop the program further, provide more advanced courses as well as admit more students was to spin-off the knowledge management and the information systems specializations into separate MSc programs, since these specializations attract a high proportion of applicants. The MSc in Knowledge Management program was launched in 2002, and the MSc in Information Systems program will be launched in 2005. The MSc in Knowledge Management program is more management-oriented and more oriented towards corporate organizations, whereas the information systems program will be more technical, with more programming and system development. A proposal for a multi-disciplinary undergraduate programme, BSc in Information, is also being developed.

With the establishment of separate information systems and knowledge management MSc programs, there is a need to chart a new direction for the Information Studies program. Perhaps the program can refocus on its core business of library and information services. Possible areas of focus include:

- School media, information literacy, information services for children and young adults
- Records management, information management, archives
- Information and knowledge organization, metadata, classification, information architecture, ontology construction and use
- Digital libraries, digital information and electronic resources
- Digital information services, environment scanning, information analysis, information packaging, abstracting
- Information security
- Information entrepreneurship.

Profile of Students

A major strength of the Information Studies program is the diverse backgrounds of the students. Khoo & Chennupati (2004) and Khoo, Higgins, Foo & Lim (2004) carried out in-depth analyses of the profile of applicants and students in 2000 and 2001, as well as their subject interests and selected areas of specialization. Overall, 58% of the applicants were male, the majority of applicants were aged 25 to 34 years (71%), and they came from a cross-section of industry, mainly education, engineering and IT, and from a wide range of educational backgrounds. Only about 13% were from the library and information services sector. There were a substantial number of non-Singaporean applicants from Malaysia, China and India, though many were Singapore permanent residents or working in Singapore.

A statistical analysis was performed to identify the characteristics or applicants selecting the various specializations. Applicants selecting different specializations had different profiles and educational and employment backgrounds. Applicants tended to select the specialization that was related to their educational and employment background. Teachers tended to select the school libraries specialization, people with finance, business and accountancy background tended to select corporate information services and knowledge management, and IT workers tended to select information systems. The library specializations tended to be selected by Arts & Social Science graduates, whereas science and technology graduates preferred information systems and the Internet specializations. However, the Internet specialization appeared to cut across all sectors, with applicants from every industry selecting it.

Gender and age differences were also found. The public library and school library specialisations tended to attract female applicants. The library specializations also attracted older applicants than the information systems and Internet specializations. Men and younger applicants were more interested in IT subjects, and the knowledge management area tended to be selected by slightly older applicants and male business/accountancy graduates.

Students with a particular background bring with them a particular set of knowledge, skills, perspectives and attitudes. These are likely to influence classroom dynamics, group discussions and the students' learning experience. It will also have an impact on the type of graduates produced for each specialisation. We feel that a good mix of students from a variety of backgrounds is desirable for each specialisation. In particular, it is not desirable for library science students to be predominantly female and Arts & Social Science graduates. Something should be done to encourage male students from other educational backgrounds to join the library profession.

However, the mix of student backgrounds in a particular class can also limit what the class can accomplish and what teaching methods can be employed. For example, it is difficult to pitch an IT-related course at a level that can be handled by students with an arts and social science background and at the same time satisfy the needs of students with a technical background. Students from a non-technical background need more guidance and step-by-step instructions in programming/scripting and use of software. On the other hand, students with a technical background tend to be younger and have less working experience. In non-technical courses, they tend to be quieter and have more difficulty engaging in discussion at a high level.

Accreditation and Licensing

There is no system in Southeast Asia for accrediting LIS education programs. However, the Library Association of Singapore has set up a Standards and Professional Committee, chaired by the author, for developing accreditation and competency standards and procedures for Singapore. It has adopted the International Federation of Library Associations and Institutions (2002) *Guidelines for professional library/information educational programs – 2000,* and is in the process of developing procedures for accrediting LIS education programs in Singapore.

The issue of accreditation of LIS professional programs has been discussed in regional LIS education conferences and workshops for a number of years. In 2000, Majid et al. (2002) carried out a questionnaire survey of LIS schools in Southeast Asia to explore the perceptions of the LIS schools about a regional accreditation scheme. 12 of the 14 schools surveyed agreed there is a need for developing an accreditation scheme for LIS degrees in Southeast Asia. 13 of 14 schools expressed interest in participating in a regional accreditation scheme. A majority of the respondents agreed that a joint committee of representatives from CONSAL (Congress of Southeast Asian Librarians) and LIS schools should be responsible for developing and coordinating a regional accreditation scheme. CONSAL is a conference series held every 3 years (http://www.consal.org). Majid et al. (2002) also outlined a model for developing and implementing an accreditation scheme under the auspices and oversight of CONSAL. The issue of accreditation and certification was raised at the CONSAL XII (2003) conference in Brunei, and a proposal for the development of a regional accreditation and certification scheme was included in the conference resolutions.

For the MSc program at NTU, there is currently no credit transfer arrangement with other programmes, except for student exchange programs. However, a regional accreditation scheme will certainly facilitate credit

transfer arrangements. There is also no formal licensing system for librarians in Singapore. The only country in Southeast Asia that licenses librarians is the Philippines (Santos, 1996).

Market trends of information specialists in Singapore

It is estimated that there are about 550 practising professional librarians in Singapore. Because of the economic downturn, there is a hiring freeze in most libraries. However, it is obvious that all organizations need some kind of information management. Information processing and information management tasks are typically handled by administrative officers or IT specialists. There is a lack of awareness among employers of the need for information professionals to manage information and knowledge, and that LIS graduates can fill that role. Promotion and marketing is needed to educate employers about the role of information and knowledge professionals.

NTU Division of Information Studies is carrying out a study of manpower requirements for Information and Knowledge Professionals. The objectives are to identify the main types of information and knowledge-intensive jobs currently available and projected to be available in 5 years, the main types of information skills needed in industry, and the projected employment numbers. The focus is on non-traditional information-related jobs. The results of the study are expected to be ready in March 2005.

Students and alumni of the MSc program at NTU are regularly surveyed on the usefulness of the program and the courses offered. In a recent survey with 219 respondents, the courses most often deemed useful or relevant (in reverse order of frequency) were: Information Sources & Searching, Collection Development & Management, Information Storage & Retrieval, The Information Society, Information Organization, Knowledge Management, Internet & Web Technologies, Business Information Sources & Services, Cataloguing & Classification, Database Management Systems, Information Users & Society, Research Methods in Information Studies, and Management of Information Agencies. When asked which courses were less useful or relevant, at least 10 respondents selected Information Sources & Searching, The Information Society, and Cataloguing & Classification, all which also appeared in the list of useful courses!

Conclusion

Within a period of 10 years, NTU Division of Information Studies has developed a vibrant, innovative and popular Information Studies program that attracts high caliber students from diverse backgrounds from a cross-section of

industry. Graduates of the program also work in a wide range of organizations and environments. The program defines 5 areas of concentration. The two most popular areas of concentration, information systems and knowledge management, have been developed further into separate MSc programs. With this development, the Information Studies program can now re-focus on developing its core LIS areas, and provide leadership in the development of innovative library and information services. The Division is also developing the records management and archives specialization, in collaboration with the National Archives of Singapore, and the school media specialization.

The Division is also strengthening its ties with the library profession by opening its courses to the profession to take for continuing education, and carrying out collaborative projects with libraries. Faculty members also run short courses and workshops for the Library Association, the National Library Board, and other organizations. The Division is also seeking to develop regional ties and cooperation, and to offer training programs to the region in specialized areas.

References

International Federation of Library Associations and Institutions. (2002). *Guidelines for professional library/information educational programs – 2000.* The Hague: IFLA. Retrieved 15th Oct. 2003 from http://www.ifla.org.sg/VII/s23/bulletin/guidelines.htm

Higgins, S.E., & Chaudhry, A.S. (2003). Articulating the unarticulated elements of the information science paradigm. *Journal of Education for Library and Information Science, 44* (1), 2-16.

Khoo, C., & Al-Hawamdeh, S. (2000). IT in the information studies curriculum: How much is enough? How much is too much? *Singapore Journal of Information Management, 29*, 31-43.

Khoo, C., & Chennupati, K.R. (2004). Profile of LIS applicants selecting different specialisations. *Libri, 54*(2), 67-81.

Khoo, C., Higgins, S.E., Foo, S., & Lim, S.P. (2004). A cluster analysis of LIS students in Singapore and implications for defining areas of specialization. *Journal of Education for Library and Information Science, 44*(1), 36-57.

Khoo, C., Majid, S., & Chaudhry, A.S. (2003). Developing an accreditation system for LIS professional education programmes in Southeast Asia: Issues and perspectives. *Malaysian Journal of Library & Information Science, 8* (2), 131-149.

Library 2000: Investing in a learning nation: Report of the Library 2000 Review Committee. (1994). Singapore: Singapore National Printers.

Majid, S., Chaudhry, A.S., Foo, S., & Logan, E. (2003). Accreditation of library and information studies programmes in Southeast Asia: A proposed model. *Singapore Journal of Library & Information Management, 32*, 58-69.

Sabaratnam, S. (1993). Library education and training in Singapore: An update. Asian Libraries, 3(4), 83-86.

Santos, A.M. (1996). Professionalization of librarians under Philippine law. In *Libraries in National Development: Papers presented at the 10th Congress of Southeast Asian Librarians, Kuala Lumpur* (vol. 1, pp. 159-168). Kuala Lumpur: CONSAL X.

The IT 2000 report: A vision of an intelligent island. (1992). Singapore: Singapore National Printers.

Thuraisingham, A. (1984). The part-time post-graduate diploma course in library and information science—The Singapore experience. *Singapore Libraries, 14*, 63-66.

Thuraisingham, A. (1989). Education for librarianship and information studies in Singapore. In *The need to read: Essays in honour of Hedwig Anuar*. Singapore: Festival of Books Singapore Pte Ltd.

Wee, J. G. (1980). Library association and library education: A continuing problem. *Singapore Libraries, 10*, 1-7.

Appendix. List of courses in the MSc in Information Studies program at the Nanyang Technological University, School of Communication & Information

Core Courses (Compulsory)
H6602 Information Sources & Searching
H6603 Information Storage & Retrieval
H6604 Professional Seminar

Group A Electives (to select 2)
H6611 Human-Computer Interaction
H6612 Information Management
H6613 Information Organisation
H6614 Internet & Web Technologies
H6615 Archives & Records Management

Group B Electives (to select 4)
H6631 Collection Development & Management
H6632 Cataloguing & Classification
H6633 Client-Centred Information Services
H6634 Business Information Sources & Services
H6635 Management of Information Organisations
H6636 Automated Systems & Services for Libraries
H6637 Digital Libraries & Information Portals
H6638 Evaluation of Library & Information Services
H6651 Instructional Role of School Media Specialists
H6652 Information Sources & Services for Children & Young Adults
H6661 Conservation & Preservation
H6662 Digital Preservation
H6663 Archiving of Multimedia Information
H6664 Heritage & Cultural Informatics
H6671 Database Management Systems
H6672 Web-Based Information Systems
H6673 Multimedia Information Systems
H6674 Intelligent Information Retrieval Systems
H6675 Systems Analysis & Design
H6676 Computer Programming for Information Professionals
H6677 Information Mining & Analysis
H6678 Data Communication & Networking
H6690 Special Topic: Information Security & Digital Forensic
H6691 Special Topic: Mobile Applications Development
H6699 Critical Inquiry in Information Studies

About the author

Christopher Khoo Soo Guan obtained his PhD in Information Transfer from Syracuse University, an MSc in Library & Information Science from the University of Illinois, Urbana-Champaign, and a BA in Engineering & Applied Science from Harvard University.

He is an Associate Professor in the Division of Information Studies, Nanyang Technological University (NTU), School of Communication & Information, where he has taught for nine years. He is the program director for the MSc in Information Studies program. At NTU, he teaches courses in data mining, database management, Web-based information systems, research methods, knowledge classification and organization, information searching, and information storage & retrieval.

Prior to joining NTU, he worked for 8 years at the National University of Singapore Library as a reference librarian and serials librarian at the Science Library, Medical Library and Science & Technology Reference Department.

His main research interests are in natural language processing, information extraction, automatic categorization, text and data mining, intelligent interfaces, and information retrieval. He was the editor of the Singapore Journal of Library & Information Management, from 1997 to 2002.