



The IT factor in LIS jobs: A South African perspective

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Meeting:

150 — The influence of new developments of information technology on professional development in libraries — Information Technology with Education and Training

Abstract:

IT (information technology) and its association with communication technology (information and communication technologies - ICTs) has changed the way libraries operate. Today, ICTs play a very important role in the library environment. Traditional library tasks such as cataloguing, circulation, and collection development, which were performed manually a few decades ago, have now been automated to a lesser or greater extent. This has led to changes in some library job titles and job descriptions over the years. As a result, library professionals have been compelled to acquire new (IT) skills. This study was conducted to investigate whether the need for IT skills has had an influence on job titles and job requirements in South African libraries. A newspaper scan for LIS related job adverts over a period of three years, 2009-2011, was conducted on a weekly newspaper, The Sunday Times which has an extensive section of careers/ job advertisements. Four hundred and thirty six LIS job adverts were analyzed, and of these 50 had core IT titles or requirements. The results revealed that IT has a significant influence on the LIS job market in South Africa. These jobs range in requirements from basic computer literacy, to advanced (networking, database administration, web development) IT skills. The study recommends that South African LIS schools and the work sector should intensify formal and informal (e.g. continuous education) IT education and training in order to meet the demands of the current job market.

Keywords: *Information technology, LIS job market, LIS education and training, job advertisement, newspaper scanning, South Africa*

1. Introduction

In this digital age, information technology (IT) has changed the face of the library and information science (LIS) job market, just as it has changed library operations. The digital age has forced LIS professionals to acquire basic IT knowledge and skills, and this includes traditional LIS jobs such as librarianship (Riley-Huff & Rholes, 2011). Apart from basic IT skills, a trend is starting to emerge whereby the LIS professional is expected to have advanced IT skills and proficiency in areas such as web development –as distinct from web design skills-, computer hardware, integrated library systems, and the internet (Batool & Ameen, 2010). This trend has led to enormous changes in the LIS job market. Changes can be noticed in job titles, knowledge and skills requirements, educational requirements, and in the experience and attitudes required in the LIS workplace. Nothacumjane (2011) identifies a set of key skills that are required for the new generation LIS professional in the digital age, namely personal skills, generic skills, and discipline-specific knowledge.

We assume that in Africa, and in South Africa in particular, the LIS job market is one of the biggest and perhaps the most dynamic. Millions of LIS professionals are employed as librarians, information specialists, knowledge managers, and in other LIS related positions. Observations from the recent analysis of LIS job adverts by Shongwe and Ocholla (2012) show that IT is a key requirement in the LIS job market in South Africa, especially when compared to other information service requirements.

This paper provides an overview of the LIS job market in Africa through a background literature review and the presentation of a case study, followed by the conclusion and recommendations of the authors.

1.1. An Overview of the LIS Job Market in Africa

Several studies on the LIS job market in Africa and South Africa in particular have been conducted by a number of scholars. Follow-up/ tracer studies in particular have enjoyed popularity as tools for investigating the LIS job market (Rugambwa, 1998; Quarmby, Schumm, 1994; Loughridge, Oates & Speight, 1996; Marcum, 1997; Alemna, 1991 and Shongwe & Ocholla, 2011) in popular journals. Other than follow-up studies, scanning newspaper advertisements for LIS-related jobs has also received some attention in the past (e.g. Rosenberg, 1989) and more recently as well (Snyman, 2000; Ocholla, 2001, 2005, Ocholla & Shongwe, 2012). These studies show that libraries have consistently turned out to be the main employer of

LIS graduates and LIS professionals. This is rather paradoxical because the growth and development of libraries in Africa is very insignificant (Ocholla, 2009). Speculatively, this may suggest that very few qualified librarians are produced by LIS schools; libraries are overstaffed; graduates find work in the emerging information market; graduates do not get employment; or a combination of one or more of these factors. There are cases reported where libraries in Africa, particularly academic libraries, are indeed overstaffed, as noted by Rosenberg (1997), but this situation does not seem to apply to most libraries (Ocholla, 2009), particularly public libraries (Issak, 2000) and school libraries that are largely non-existent in the region (Ikoja-Odongo, 2009). For example, approximately 20% of schools have school libraries in South Africa (Ocholla, 2009). We believe that libraries alone have failed to provide job opportunities for LIS graduates as hardly any new libraries are being built; those existing are unable to offer decent employment remuneration packages or salaries due to lack of funds; there is a shortage of appropriate posts/ vacancies to accommodate college/ university graduates; and library management structures do not prioritise library development. Aside from libraries, other information-related job opportunities are increasingly growing.

The public and private sectors increasingly recognise the need for proper information services, which in turn demands knowledgeable and skilled information service providers. This development was noted in the late eighties and early nineties (e.g. Rosenberg, 1989, 1994) by studies focusing on the LIS market in Kenya for the development of a new School of Information Sciences at Moi University. It was found that 60% of the information-related positions in Kenya were available in the emerging market in the late eighties and early nineties. This development was confirmed in subsequent studies by Snyman (2000) and Ocholla (2001, 2005). Snyman's study is supported by Ocholla (2001, 2005), Lutwana and Kigongo-Bukenya (2004), Stilwell (2004) and Shongwe and Ocholla (2011), to name a few, in demonstrating that libraries in the public sector still offer most information-related job opportunities, but also that non-traditional LIS jobs in the emerging market are on the rise, a trend that we believe is ongoing. We cannot easily quantify with accuracy the nature and number of information-related jobs in the public and corporate sectors in Africa because such data may be currently unavailable. We do, however, believe that job advertisements in the public domain provide a significant insight into the rapidly diversifying and expanding LIS market on the basis of which LIS training needs, curricula, levels of education, and market trends in Africa can be determined.

While the traditional LIS job market in Africa is still limited due to the few number of libraries, there appears to be a growing demand for LIS graduates in governments, parastatals (semi-autonomous government institutions), the corporate sector, NGOs, and in civil society in areas such as archives and records centers, government departments and ministries, research institutions, the publishing and book trade industry, LIS education and training, and mass media.

1.2.The influence of IT on the LIS professional

Several studies have been conducted around the world on the need for LIS professionals to have or develop their IT knowledge and skills. Some of the studies were conducted for curriculum review purposes and others were conducted to investigate the IT skills' competencies of LIS professionals. Studies include ICT education by Mathews and Pardue (2009); Bakar (2005) on IT competencies by LIS professionals in Malaysia; Kwasik (2002), who focused on serials librarians in the rapidly changing electronic and technological environment; Ferek and Marcinek (1999), focusing on how libraries would operate in the future and the knowledge and skills for the future librarian; and Dolan and Schumacher (1997), focusing on new LIS jobs emerging in the LIS job market in the United States of America, among others (Riley-Huff & Rholes, 2011; Batool & Ameen, 2010; Kruger, 2005; Bartot, 2009; Wusteman & O'hleada, 2006; Flower, 2004; Hoskins, 2005; Khurshid, 2003). All these studies recognize and report the increased access and use of ICT in the LIS workplace.

Drawing from the literature, we classify the studies into three broad categories: IT skills requirements, IT used in libraries and IT in LIS education (curriculum). The current study aims to contribute to the body of knowledge falling under the IT skills requirements category by investigating whether IT has an influence on job titles and job requirements in the South African LIS job market.

2. Methodology

A longitudinal, qualitative approach was used to collect and analyze data for this study. Content analysis through newspaper scanning (Ocholla, 2005) was adopted to scan and analyze LIS job adverts in The Sunday Times weekly newspaper over a three year period (from January 2009 to December 2011). Content analysis has been previously used in similar studies by Reeves and Hanh (2010), Adkins (2005), and Clyde (2002) among others. This period was chosen arbitrarily. For each edition of the weekly newspaper, the careers section was scanned for LIS related job adverts. This newspaper was selected because of its popularity and wide readership in South Africa. The Sunday Times has a readership of about 3.24-million people weekly (http://www.southafrica.info/ess_info/sa_glance/constitution/news.htm). We believe that most job adverts in the public domain appear in The Sunday Times. A total of 436 LIS jobs were advertised over the three year period. Of these, 50 had core IT requirements and titles. The following criteria were used to choose adverts for analysis: i) If the job title contained core IT words such as 'e-resources', 'systems librarian', etc. ii). If the job advert required core IT (web development, networking, programming, etc.) knowledge and skills. The collected data was recorded on an Excel spreadsheet and analyzed using content analysis (Elo & Kyngas, 2008; Cukier et al., 2009).

3. Results

In total, 436 job advertisements appeared in The Sunday Times between January 2009 and December 2011. Content analysis was subsequently used to group the adverts into five broad categories, i.e. academic, information, library, knowledge management (KM), and records management (RM) and archives. Job adverts with the word 'library' or 'librarian' were allocated to the library category. Academic job adverts for professors, associate professors, senior lecturers, lecturers, junior lecturers and graduate assistants, were placed in the academic category, but only if they were advertised by LIS schools. The information category contained job adverts with the word 'information', except if it was a core IT advert (e.g. information technology manager). The knowledge management category contained adverts with the words 'knowledge' and 'knowledge management', while the records management and archives category contained job adverts with the words 'records', 'documents', 'records/ document management' and 'archives'.

The library category advertised the highest number of jobs (229), followed by the information category (100 adverts), and the knowledge management (46), records management and archives (48), and academic (13) categories. Table 1 summarizes the results.

Table 1: Total number of job advertisements and categories advertised in the M&G and The Sunday Times

Year	Category						Total No. of Jobs
	Library	Academic	Information	KM	RM	Archives	
2009	61	5	31	14	6	0	117
2010	79	5	37	16	11	2	148
2011	89	3	32	16	31	4	171
Total 2009-2011	229	13	100	46	42	6	436

3.1. The IT factor

Almost all of the 436 jobs advertised required basic or intermediate (MS Office, basic internet) and advanced (50) IT skills (web development, systems development, computer networking, data warehousing, etc.). In all five of the categories mentioned, basic IT knowledge and skills

appeared to be the minimum requirement. The subsections that follow present the IT requirements that were identified according to the five categories of adverts. New LIS job titles that appear to be influenced by IT are also discussed.

Academic Category

There were no IT-related job titles or any IT requirements in any of the adverts for academic posts. Only traditional LIS job titles - research assistant, junior lecturer, lecturer, senior lecturer, associate professor, professor - were listed.

Information Category

In this category, 20 job adverts required advanced IT skills, and 12 of these were adverts for the position of CIO. Job titles that required advanced IT skills and knowledge were: CIO, information specialist, information officer, electronic document systems administrator, information manager, information management systems manager, records and information officer, and information architect. Highly sought after IT skills were: data warehousing, business intelligence, computer networks, IT policy, systems development and implementation, database systems, web design, free and open source (OS) software, institutional repositories, and content management systems. Knowledge and skills in the following software packages were essential: SQL, HTML, XML, JavaScript, PHP, MySQL, Flash, Corel Draw/Photoshop, DOBE Acrobat, and SAP. The educational requirements for these jobs ranged from core IT qualifications in IT, Computer Science or Computer Engineering, to a degree or diploma in Computer Science, Information Systems, or Information Science.

The IT factor in the requirements of the Chief Information Officer (CIO)

All 12 of the adverts in this category had strong IT requirements, especially with respect to IT management skills for CIOs. Skills mentioned ranged from developing and implementing IT strategy, to information systems management, database management, information and IT architecture, IT governance, selecting and retaining IT talent, IT budgeting, IT procurement, information security and risk management, development of IT policy, IT business alignment, and technology innovation. Because of the strong IT requirements for this post, IT related educational qualifications were essential, specifically in Computer Science/Engineering, Information Systems or IT. An MBA was also listed as a requirement.

Knowledge Management Category

10 of the advertisements that fell into the knowledge management category required a strong IT background. The knowledge management titles that required a strong IT background were: knowledge manager, knowledge officer, knowledge practitioner, knowledge resource officer, and knowledge management specialist.

Like the information category, knowledge management job advertisements required specific knowledge of and skills in software development, database development, systems development, IT hardware, and IT legislation. The job adverts also required specific knowledge of and skills in different software packages. Proficiency in MS Office was a basic IT requirement. Expert skills were essential in SQL, Oracle, MySQL for database systems; C, C++, Java, HTML, XML and AJAX for web and software development; Linux, UNIX, Sun Solaris for networking; and SharePoint for knowledge sharing. Knowledge Management positions required an educational qualification in knowledge management, IT, or Information Science.

Library Category

A total of 17 job advertisements fell in this category. While all the jobs required basic computer (MS Office) and internet skills, and knowledge of institutional repositories, digitization, networked electronic information services, and library systems (OPAC, ALEPH, INNOPAC, MARC21, OCLC, etc.), others required IT skills in web development, networking, database development and maintenance, and multimedia (podcasting and webcasting), among others.

In this category, new job titles that are distinctly IT related were observed. The subsection that follows outlines these job titles.

Systems Librarian (8 adverts)

Applicants had to be proficient in electronic library systems, computer software packages, computer hardware, networking (LAN), information security, and system administration. Educational qualifications listed were university degrees in Information Science, BBibl, Computer Science, or IT. The successful applicant would be in charge of the administration of systems and networks, the implementation of e-strategies, and the training of staff in ICT operations.

Electronic Resource Librarian (1 advert)

The requirements here were web development using mark-up languages (HTML, XML), and a university degree in LIS. The duties listed were identifying electronic resource procurement and providing access to electronic resources.

Library Web Application Specialist (1 advert)

A formal course in web development and proficiency in web design and web programming, technical understanding of library systems, and knowledge of word-authoring languages and tools such as HTML, CSS, etc., were required for this post. The successful applicant would be expected to design and develop standards and maintain web applications for the library, and provide advice on technical web applications.

Electronic Resource Manager (1 advert)

The applicant had to have a degree in IT or LIS. The applicant's duties would include support for electronic/ internet endeavors, and electronic resource management. The IT requirements listed were basic networking (LAN setup and servers), database management, and information management.

Library Web Application Specialist (1 advert)

A course in web development and web design was the primary educational requirement for this post. Technical skills and knowledge in library systems and knowledge of web authoring tools and languages were also essential. Excellent HTML and CSS skills were also listed as a requirement.

Head of Research Repository and Digital Scholarship Services (1 advert)

The candidate would be expected to promote the growth of research repositories and electronic theses and dissertation archives, develop platforms and introduce recognized standards of digital preservation management, keep up with best and emerging practices within digital scholarship, and oversee digital assets. A postgraduate degree in LIS was listed as an essential educational requirement. Technical metadata knowledge was also essential.

Other IT related titles whose requirements were not specified include Library Web Services Developer, E-services and Systems Director, E-repository Administrator, and Library Technology Application Specialist. There was only one advertisement for each of these posts.

Records Management and Archives category

Only three adverts that required a strong IT background were advertised in this category. These were adverts seeking a Records Manager, Electronic Document Management System Administrator, and a Records Officer. The requirements listed were knowledge of IT systems, computer networks, electronic documents management systems, electronic records management systems, and data warehouse. Technical skills in data backup, SQL and configuration were also essential. These jobs required a formal qualification in LIS, IT, Information Systems, or Information Science.

4. Discussion

The results indicate the increasingly essential nature of IT knowledge and skills in the LIS job market in South Africa. A strong IT background appears to be necessary in both knowledge management and information service provision. The position of CIO in particular requires strong IT technical and management skills. According to Sobol and Klein (2009), CIOs are selected from different backgrounds to ensure that they have IT management skills and have migrated to the boardroom for operational planning and to push decisions. Overall, it can be argued that

some of the IT requirements and skills required in the two sectors fall under computer science and computer engineering, and not LIS. This especially applies to skills such as systems development, networking, and database design and development. The knowledge management and information sectors are multi-disciplinary fields. Knowledge management and information management are no longer part of LIS only, and can increasingly be found in other fields such as computer science, information systems, software engineering, and computer engineering. Therefore it would appear that employers are trying to recruit skilled workers from other fields. This can also be observed in the educational qualifications that were identified in the job adverts for these two categories. Employers required qualifications in IT, IS, and computer science in some instances.

Libraries are also experiencing a spike in demand for IT skills, and the adverts would suggest that they are actively recruiting personnel who are skilled in IT. Traditional library tasks such as cataloguing and classification, which were manual only a few years ago, have now been automated/ digitized, which means that they are performed using a computer. Many other library functions have now been automated. In addition to basic IT skills, some libraries are now seeking personnel with advanced IT skills such as web development, networking (LAN setup, troubleshooting and repairs), institutional repositories development, and database design and development. System librarians, library web developers, e-resource librarians and institutional repository developers and managers, are highly sought after. This is in keeping with other studies (Dolan and Schumacher, 1997; Ferek and Marcinek, 1999) that identified similar trends in other countries. The increased demand for IT skills has led to new job titles in the library job market. Job titles such as e-resources/ repository librarian, web application librarian, and library technology specialist, to name a few, are starting to emerge. The educational requirements for these jobs range from a diploma or degree in LIS, to a degree in IT or Computer Science.

5. Conclusion and Recommendations

We conclude that IT plays a major role in the LIS job market in South Africa. While basic IT skills (computer literacy) have become essential in the job sector in general, we are noticing a steady increase in the requirement for advanced IT skills in the LIS job market. Libraries are also becoming major recruiters of personnel who are skilled in IT. This trend continues to grow as libraries automate more of their functions. The IT influence on the LIS job market has led to the introduction of new job titles and a change in existing ones. Some of the skills are more in line with the professions of Computer Science, Information Systems, and Computer Engineering than with LIS.

We recommend that LIS schools in South Africa should consider introducing advanced IT courses to their curriculum in order to meet employers' expectations. Some of the core IT courses should be turned into core modules, which would compel students to take them. Furthermore, South African LIS schools and the work sector should intensify formal and

informal (e.g. continuous education) IT education and training in order to meet the demands of the current job market.

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