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Changing workplace demands: what job ads tell us

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Abstract

Purpose - This paper analyses job ads as relatively accessible indicators of the knowledge, skills and competencies required of librarians by employers. It then uses a framework provided by the literature on professional jurisdiction to examine what may be trends and shaping factors for the Library and Information Studies (LIS) profession with regard to jurisdiction in a changing information landscape.

Design/methodology/approach Job ads were examined in two separate studies; one comparing job ads in Australia and the US over eight weeks in 2004, and the other looking at one month snapshots of Australian job ads in 1974, 1984, 1994 and 2004. The text from the job ads was analysed using a content analysis software package. The literature on professional jurisdiction provided an interpretive framework.

Findings - The Australian snapshots over time showed that there is an increasing lack of clarity about the skills and competencies required of librarians. The American job ads seemed to rank jurisdictional knowledge and professional qualifications more highly than their Australian counterparts. Interpersonal skills, behavioural characteristics and technical services skills are in demand in both countries.

Originality/value - In addition to reporting on the knowledge, skills and competencies required of librarians, by applying an interpretive framework from the literature on professional jurisdiction the paper exposes some of the challenges ahead for the LIS profession.

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Keywords Librarians, Information professionals, Job ads, Professional jurisdiction, US, Australia

Paper type Research

Introduction

While discussion about the future of the information professions is not new, the increasing speed and breadth of technological change requires that information professionals, in this case specifically librarians, take time to consider the demands this changing world is placing on them and the impacts of these demands on the profession's current status. An investigation of this could be approached in several ways. We have begun by looking at job advertisements (ads) because they "bluntly

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state necessary and desired employer requirements from candidates. Recruitment advertising is how the employment market communicates its needs to individuals seeking to engage with it" (Cullen, 2004, p.138).

This paper briefly examines the literature on LIS job ads and the skills and competencies identified. The literature on professions, generally and specifically in relation to Library and Information Studies (LIS), is also briefly described. The paper then explains the methodology and summarises the findings of the two studies, the first a comparison of job ads in Australia and the United States of America (US), and the second an Australian study looking at snapshots in time over 30 years. The findings obtained from the two studies are examined utilising an interpretive framework based on aspects of the literature on the profession of librarianship and professions in general.

Literature

There is an extensive literature on LIS jobs going back over several decades. Some studies have focused on the extent and vitality of the employment market with many of these concentrating on the availability of positions for new graduates from LIS programs. Other studies, which are of more direct relevance to the work reported here, have focused on the knowledge and skills mix desired and/or required by employers. Many of these studies have used job ads to gather their data.

The Department of Information Studies at the University of Sheffield has tracked the graduates of its MA and MSc Information Management programs for more than thirty years, publishing findings from time to time and in doing so throwing light on changes in tasks performed (Loughridge *et al.*, 1996; Quarmby *et al.*, 1999). The relatively recent report of the work duties of the MSc graduates (1994-1996) reported that "use of the Internet, practical computer skills and database design are the elements of most use in their postgraduate careers" (Quarmby *et al.*, 1999). Moore's (1987) work on the non-traditional labour market in the mid 1980s has been the catalyst for investigations of a similar kind in various countries, for example, Australia (Brittain, 1996) and Canada (Apostle and Raymond, 1991). These and similar studies have found that the non-traditional market has grown modestly over time. In addition, as can be seen from the reports of various studies mentioned below, the content of "traditional" jobs has changed substantially over time.

Cullen (2000) surveyed the demand for LIS workers in Ireland in 1999 using job ads in two major Irish newspapers. He found a strong demand for IT skills (specified in 47 of the 129 ads) and that "Communication/Interpersonal skills" (his category) were also in quite high demand. Clyde took an international perspective doing a content analysis of 291 job ads on the international listserv of the International Federation of Library Associations and Institutions' (IFLA) LIBJOBS. She found that approximately half the jobs included a component of education and training with the most frequent specification being for bibliographic/library instruction in 47 per cent of the ads. Training of library and other staff was identified as required in a third of the positions (Clyde, 2002). In a recent Australian study Myburgh (2003) found that

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attributes quite different to established "core knowledge" were called for, with technology and technological expertise featuring frequently in job ads.

A number of US studies using job ads have gathered longitudinal data. Xu (1996) analysed job ads in *American Libraries* over the period 1971 to 1990 to assess the effect of automation on job requirements for cataloguers and reference librarians. He found an increasing demand for computer skills in both areas and for bibliographic instruction duties for reference librarians. He noted that the demand for oral and written communication skills first appeared in his data period 1976-80. Heimer (2002) also used job ads from *American Libraries* investigating the period January 1989 to December 1998. Her focus was electronic librarianship, a type of job that she believed spanned reference and library systems work. The results supported her contention that jobs were occurring which required skills in reference and technical support as well as roles in collection development and instruction. Liaison was the most cited interpersonal demand, occurring in 53 per cent of cases and training was specified in 49 per cent of cases. Another study using ads from *College & Research Libraries News* for the period 1990-2000 also found an increasing number of electronic or digital positions and that the latter had more administrative and supervisory responsibilities (Croneis and Henderson, 2002). The duties of instruction/training and collection development liaison occurred to a similar extent in both types of positions. A 2000 investigation of 250 American online academic librarian job ads revealed requirements for technical skills, interpersonal and behavioural skills, and service delivery competencies (Marion, 2001).

White (1999) used job advertisement data for 1990 to 1998 to research American academic subject specialist positions. He found an increasing demand for technology-related skills; however, reference desk services, bibliographic instruction and collection development were also frequently specified. Most ads cited communication as a required skill and that a Masters in LIS was also a requirement for most positions. Lynch and Smith (2001) looked at American academic library jobs between 1973 and 1998 and found that, by 1998, these jobs routinely included knowledge of computer technologies, that instruction was now part of reference work, and that behavioural skills, most commonly oral and written communication skills, had emerged as job requirements. The authors concluded that jobs in academic librarianship were shifting from definition along traditional functional lines to jobs combining tasks from more than one functional area.

In summary, the studies reviewed generally found an increase in demand for computer and IT skills. They also revealed increased requirements for particular behavioural characteristics and interpersonal skills.

Detailed studies of the professions in general indicate that a central element of each is an accepted body of knowledge over which the profession claims unrivalled expertise. Abbott (1988, 1998) terms this claimed expertise the profession's "jurisdiction", or its "turf" (not Abbott's term). Coupled with this is a system of certifying individuals that have mastered that body of knowledge. There are other important elements which

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constitute a profession, which Abbott sees as constituting a "system", and which vary in significance from profession to profession.

From the 1980s librarianship has been viewed as one of a number of information professions which exists in a turbulent environment in which other professions and academic disciplines vie for what librarians have seen as their traditional jurisdiction (Van House and Sutton, 1996; Myburgh, 2005). Danner (1998) argues that new technologies have been a catalyst for the convergence between content (librarians) and access technologies (information technologists). In addition, previously clear boundaries between librarians and other information professions such as archivists and records managers have blurred.

This blurring of boundaries has led to discussion about how librarianship can maintain and expand its space and professional credibility in the world of information management and access. Van House and Sutton (1996) argue for an information-centred rather than institution- (library) centred approach to practice, and for the need for this to be represented in the LIS curricula, a trend which according to the KALIPER (2000) study of LIS education is occurring.

Diamond and Dragich (2001, p. 404) claim that the "real battle for professional recognition is waged in the marketplace" and maintain that librarians need to deliver in terms of values, knowledge and skills. Danner (1998) points out that this is best achieved through cooperation rather than competition with other information professions, and that the way to ensure that we maintain our professional status is through doing well those things within our traditional area of professional expertise. Claiming, maintaining and re-claiming jurisdiction is an on-going task for the profession. Macdonald, following Larson, characterises this task as being a significant element in the "project" that professions engage in to maintain their identity (Larson, 1977; Macdonald, 1995, pp. 188-189). However, the intensity of activity in defining jurisdiction varies from time to time: most intense as the profession is established, and when it is under some challenge from rival professions, as between computer science and LIS (first discussed by Abbott (1988)).

Methodology

This paper reports two studies, and brings the results of both together using a framework of professional jurisdiction. The first study is a comparison of job ads in Australia and the US over an eight-week period. The Australian data consists of 183 job advertisements appearing in the *Sydney Morning Herald (SMH)* and *The Australian* newspapers, and their associated job search websites (*SMH* <http://www.mycareer.com.au>; *The Australian* <http://www.careerone.com.au>) during the eight-week period from August 21, 2004, until October 12, 2004. The *SMH* is a city-based newspaper, and ads appearing in it are generally localized to the city or state. *The Australian* is a national newspaper and its ads are more national in focus. It generally advertises more senior positions than does *SMH*. Ads from the online sources were already in digital format. Print ads were scanned using OCR techniques.

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The US data consists of 212 ads that were collected for the same eight-week period from the online job board managed by Drexel University's College of Information Science and Technology, which offers an American Library Association (ALA) accredited Master's degree program. The job board is a well-known resource for employers and job seekers. It has existed for many years, originally as a literal board with posted job ads, and now in the online format. The number of ads appearing on the job board is much greater than the number appearing in the local newspapers and often the job notices in the newspaper are duplicates of the online ads. The job board is open to the public and there is no fee for employers to post an ad.

The second study was set only in Australia and collected a snapshot of 135 job ads appearing in the *SMH* newspaper during a four-week period over August and September in each of the years 1974 (N=31), 1984 (N=26), 1994 (N=40) and 2004 (N=38). The *SMH* is a city-based newspaper, and job ads appearing in it are generally localised to the city or state, although occasionally job ads for positions further afield were found and included. The job ads from the earlier years had to be sourced from microforms of the newspapers, a particularly onerous task; those for 2004 were gathered during the study period. Newspapers were chosen as the data source as they are one readily available source that has existed in all the time periods studied.

In both studies job ads were included that specifically asked for a librarian or professional LIS qualifications; or while not specifically asking for an LIS qualification, were located in a library or information centre and clearly wanted professional level LIS skills. Following the approach of an earlier Australian Library and Information Association (ALIA) study (Browne, 1991), both studies eliminated duplicate job ads. It is acknowledged that other resources are used to advertise jobs and recruit librarians, such as professional newsletters, online e-lists and websites, specialist and generalist recruitment agencies, etc.

Previous researchers have used the examination of classification terms, such as headings or descriptors, for structural analysis of a knowledge domain (McCain, 1995a; McCain, 1995b; Marion and McCain, 2001). For both studies, the procedures used for data analysis follow those in a previous study by Marion (2001). A critical step is creating a dictionary or categories of terms that constitute the basis for further analysis. A categorisation dictionary was created from a combination of sources including: (1) counts of the most frequently mentioned terms in the selected ads; (2) a literature review; and (3) our own knowledge of the LIS industry. The subject index of *Library and Information Science Abstracts (LISA)* assisted with the creation of synonyms and the allocation of terms to categories. Table I contains the 18 categories used for the content analysis. The content analysis software package, SimStat/Wordstat (Provalis, 2004) was used to identify the frequency with which specific categories of technical skills, LIS knowledge and competencies, behavioural characteristics and so on were included in the ads.

Take in Table I. Content analysis categories

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The frequency counts of categories were converted to a matrix of co-occurrence similarity (correlation) values. The similarity values indicate the relative similarity or dissimilarity of occurrence for pairs of terms. The use of correlations, rather than raw frequency counts, has the effect of compensating for large differences in counts for commonly occurring terms. While large frequency counts are themselves a measure of importance, the present research is also concerned with the structure of the job market; therefore, a measure of co-occurrence similarity provides additional useful information. The result is a "co-occurrence profile" for each category term. The profiles are assembled in a matrix and explored further. This method follows the well-established protocols for co-citation and co-word analysis[1].

The structure of the correlation matrix was explored using two multivariate techniques: cluster analysis to identify terms with similar co-occurrence patterns, and multidimensional scaling to produce a visual graph of the data. Both techniques are part of the SimStat/WordStat software package (Provalis, 2004). Using several methods to explore the data enables us to gain a more complete picture of the underlying structure.

Limitations

Both the type of employing organization and geographic location limit the study. Data include three types of libraries – academic, public and special. We excluded positions in school libraries, as well as positions that utilize and remunerate for LIS knowledge and skills but are not within libraries. The data are also restricted by geographic area to a part of the US and Australia. While Drexel University is located in the populous northeast of the US, it cannot be claimed that the positions advertised on its Job Postings Bulletin Board are representative of the United States. Similarly, the Australian data, which was drawn from the major newspaper of Sydney, the largest city in the country, and a smaller circulation newspaper with national coverage and distribution, cannot be claimed as national. Further, the data for different types of libraries indicate that there may be patterns of variations according to the type of library (academic, special or public) suggesting avenues for further research. However, both sets of data are from populous areas with many and varied libraries, and so should present a useful snapshot.

Another limitation is that the data was gathered over a relatively short period of eight weeks for the US-Australia study and four weeks in August/September 1974, 1984, 1994 and 2004 for the Australian snapshot over time study. For the former, although the same period was used for both countries, it must be acknowledged that factors influencing employment practices such as academic and fiscal calendars differ between the countries and were not taken into account. Accordingly, this research was conducted with a small data set, to provide indications of trends and possible shaping factors rather than definite conclusions. It could therefore be viewed as a pretest of the study method.

Job ads studies

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A comparison of LIS job ads in Australia and the US

The first study, reported in more detail elsewhere (Marion *et al.*, 2005), examined job ads for professional LIS workers in Australia and the US. A summary of the number of ads by type of library and country is presented in Table II below.

Take in Table II. Number of ads by type of library and country

The analysis revealed a noticeable cross country difference in the specification of a required qualification (see Table III). In Australia only 41 per cent of the ads specified a professional library qualification while a greater percentage (75 per cent) did in the US. In both countries the professional association accredits professional courses[2], however, in the US there is one basic qualification, the masters degree, which is not the case in Australia. The uniformity of course type and structure in the US makes the specification of this qualification easy for employers. In Australia where the basic professional qualification can be gained at undergraduate, post-graduate diploma or masters level it is less straightforward and arguably more difficult for employers to express. This may account for the large number of Australian ads (68, 37 per cent) without a specified qualification; another possible explanation may be the increasing number of jobs where experience or another qualification may provide an entry path to a librarian's position. The number of job ads which do not specify a qualification are fewer in the US ads. However, Biele and Adams in their 1996 study remark on an increase in job ads not requiring an American Library Association (ALA) accredited library qualification in academic libraries (down from 98 per cent in 1988 to 90.6 per cent in 1996) (2000, p.342). They noted that only three quarters of electronic services job ads required an ALA accredited qualification.

Take in Table III. Qualifications specified per job ad Australia/US comparison

Frequency counts of the occurrence of job content categories showed some similarities and some differences. Table IV shows the ranking of categories by frequency of occurrence for the two countries and notes the difference in rank. **Interpersonal Skills**, **Behavioural Characteristics**, and **Technical Services** occur very frequently in both the Australian and US data with **Interpersonal Skills** ranking first in both countries. By contrast **Knowledge Management** is not very visible in either country's ads, having the last ranking for the US data and the second last for the Australian. Advanced computer skills, such as **Programming Languages**, are also infrequently mentioned, though more frequently in the US data.

Take in Table IV. Categories ranked by frequency: Australia/US study

Management is a much more commonly used term in the Australian ads (ranked 3) than in the US ads (ranked 8). The opposite is true for **Web Design and**

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Maintenance, which is ranked higher for the US (ranked 7) than the Australian ads (ranked 12). Australian ads are much more likely to mention **Common Workplace Requirements** (such as an understanding of anti-discrimination and equal employment opportunity legislation). This is the largest ranking difference of nine places and may be partially an artefact of the manner in which the ads are written in each country.

The less frequent appearance in the Australian data of **Information Services** (ranked 14; US ranked 10) which includes information literacy, reader education, training and bibliographic instruction is interesting and puzzling and will be discussed further below. Also interesting is the place reversal of a fast-paced, cutting edge **Environment** and **E-Resources**. In Australia the **Environment** is the fifth ranked and in the US ninth ranked. In contrast in the US **E-Resources** is fifth ranked and in Australia ninth.

The next stage of the data analysis was a cluster analysis and multidimensional scaling mapping. A representation of clusters is displayed in Table V. Briefly, cluster analysis links terms with the most similar patterns of occurrences and linkages. The US cluster analysis showed a large cluster of ten categories consisting of **Behavioural Characteristics, Interpersonal Skills, Environment, Technical Services, Reference Services, E-Resources, Management, Client Services, Web Design and Maintenance, and Information Services**. These terms portray a cluster that might be characterized as describing core skills and competencies required by employers, especially for the academic and special library settings that figure prominently in the US data set. The major difference between the Australian data and the US data is that in the US the core cluster of skills includes **Web Design and Maintenance and Information Services**, whereas **Generic Skills** and **Common Workplace Requirements** take their place in the Australian data.

Take in Table V. Representation of dictionary category clusters in Australian and US

In Australia, **Archives and Records Management** and **Knowledge Management** are placed in a cluster. Many special libraries, particularly in large corporations, have specialists that work in these related areas. The second small Australian cluster is **Web Design and Maintenance** and **Generic IT Skills**, which again appears to be a rational pairing. Basic web-related skills, such as designing and maintaining a web page, are rapidly becoming part of the standard toolkit for many librarians, similar to knowing a word processing program.

Information Services, as well as appearing infrequently (Table IV, ranked 14) in the Australian ads is also in a somewhat surprising position in the cluster analysis as an outlier, exhibiting less co-occurrence with other categories in the dictionary in the Australian data. It might be expected that skills in bibliographic instruction and information literacy, reader education, and user training would be a core competency. Interestingly, whilst not highly ranked in the US data (Table IV, ranked 10) it does

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appear in cluster 1, the cluster we believe identifies the core skills and competencies of the LIS profession.

This research provides support for several of the mentioned studies of the LIS job market. In this study **Interpersonal Skills** and **Behavioural Characteristics** occur most frequently in the ads and are central categories in the analyses. This reflects the findings of many previous studies (Xu, 1996; White, 1999; Cullen, 2000; Lynch and Smith, 2001; Myburgh, 2005). The importance of good communication and interpersonal skills cannot be underestimated and should not be surprising given the need for librarians to work as a team. Tennant (1998) was accurate in predicting that employers desire people who can communicate well and work well with others. The emphasis given in the ads to a dynamic and fast-paced library **Environment** acknowledges the reality of a quickly changing field. Employers in Australia and the US want employees who are flexible and who readily adapt to change. This suggests that those entering the LIS profession should expect to frequently update their skill set.

A number of previous studies focused on the computer skills desired by employers. Our results are consistent with Marion (2001) in that most technical computer skills, such as **Programming Languages**, are not often asked for in job ads and may not be seen as a part of the core competencies. These skills are valuable but mainly for a special group of librarians, namely systems librarians. Table V shows that for the US **Integrated Library Management Systems** and **Hardware** form a cluster (cluster 2), whereas for Australia they do not show a similar co-occurrence pattern, but occur as outliers.

As digital resources consume a greater share of library resources and become ever more varied, ensuring access for patrons is a critical function; however, aside from **Web Design and Maintenance** (ranked in US 7 and in the core cluster; and ranked 12 in Australia and clustered only with **Generic IT Skills**) these technical skills remain a specialty. In the US, but less so in Australia, web-related skills are commonly required for reference and client service librarians.

The Australian LIS job market over time

For the second study, reported in greater detail elsewhere (Kennan *et al.*, in press), Australian ads were collected over four weeks in August/September 1974, 1984 and 1994 from the *SMH* to compare with the data already collected from the same newspaper in August/September 2004. The data sample is small, influenced by the difficulty of obtaining pre 2004 data from microform. While this study was conducted in much the same way as the Australia-US comparison it gathered data over time from one country and from one source.

The data revealed that job ads have changed from 1974 where brief simple ads called for **Reference Services** or **Technical Services** or **Management** and assumed we knew what it meant to be a librarian, to long, wordy ads for multi-skilled information related jobs in 2004.

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There is a lack of uniformity in LIS qualifications required for those seeking to enter the LIS field at the professional level and an increasing lack of reference to specific qualifications. In 1974 23 (74 per cent) of the ads specified the requirement of professional library qualifications whereas in 2004 the figure was 13 (33 per cent). Table VI summarises the qualification specifications included in the Australian job ads over the four snapshot periods. The trend to down-play recognised qualifications suggests de-professionalisation. The decline in the explicit mention of ALIA-recognised qualifications (down from 74 per cent in 1974 to 33 per cent in 2004), and the increase in the number of ads which do not specify any qualification (from 23 per cent to 47 per cent) does not seem to be a healthy sign for an accrediting professional association. Curiously, for employers, some of whom belong to the profession, it would seem to be better to call for those who have no qualification in the area of claimed jurisdiction than to restrict the call to those who do! This raises the question: does the message conveyed by the ads indicate that any particular qualification or expertise is required at all?

Take in Table VI. Qualifications specified in Australian job ads over time

Other studies have discussed the increasing invisibility of LIS courses as schools merge with other disciplines (Willard and Wilson, 2004). Further, it is difficult to see how new entrants to the profession in Australia gain their first job, as the vast majority of ads by 2004 require experience. A person considering a career in LIS who has been scanning the job ads may be encouraged to choose a career where it appears less difficult to gain entry. A quick scan of 2004 and 2005 *SMH* issues reveals job ads specifically addressing new graduates in many other fields, for example accounting, engineering and IT. But a potential LIS professional sees few jobs advertised specifically for beginners in the profession. Further, as some LIS jobs that are advertised are for people with professional, technician or no qualifications, so the incentive to study LIS is removed, as from the ads, it may appear that professional positions may be obtained without professional qualifications.

However, the data confirms previous studies and anecdotal evidence that in the period under investigation, the skills, knowledge and competencies required to work as a librarian have evolved, and in some cases changed dramatically. Table VII summarises these changes over time as they are presented in the 18 dictionary categories used. This Australian data reveals a growing lack of clarity about what comprises the established skill set of LIS workers, with the jobs advertised in 1974 all calling for skills and competencies clearly within the LIS domain, whereas by 2004 less than half of positions advertised asked for established LIS skills. Technological change (for example, high incidence of requirements for **Web Design and Maintenance**, and **E-Resources**) has profoundly influenced the LIS field of employment, as have the **Behavioural Characteristics** and **Interpersonal Skills** required to operate in an increasingly technological and changing environment, and **Management** skills are increasingly in demand. It is interesting also to note that our data does not reflect the reported increase in demand for **Information Services**, such

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as information literacy and bibliographic instruction reported in the literature (see Table V). We are unclear on why this is so.

Take in Table VII. Number of Australian ads in which categories appeared

Thus, the picture which emerges over the four periods is one in which many of the skills and characteristics reflected in the job ads for the LIS profession have not been explicitly claimed as established LIS skills, nor can they be. Sometimes ads look for librarians with these skills, sometimes ads look for people with these skills, irrespective of whether they are a librarian or not and whether or not the place of employment is a library.

Professional identity: the move to the generic

Job advertisements provide a window to the marketplace, and it can be argued that one practical way the profession can demonstrate its worth is by shaping up against job ad specifications in that marketplace. From the perspective of defining librarianship as a profession, the demands for **Behavioural Characteristics** and **Interpersonal Skills** are of limited value as (no matter how desirable and useful they may be) they do not generally form a part of the specialized knowledge base of a particular profession.

The extent of change reported in the literature and exposed in the two studies lead us to question whether the LIS profession could be experiencing a jurisdiction defining "moment". Jurisdiction defining moments come when a new area is up for grabs, creating a "disturbance" in the system of professions (Abbott, 1988, pp. 91-96).

Australia over time

We may detect an example of jurisdictional shift in our Australian job ads data. By re-grouping the data of Table V into the two categories Generic and Jurisdictional (Table VIII) it can be seen that greater prominence is increasingly given in ads to generic rather than specialist (jurisdiction-defining) knowledge, until **Web Design and Maintenance** enters into the jurisdictional mix in 2004. The disturbance created seems to be reflected in a slight reversal from 65 per cent generic in 1994 down to 59 per cent in 2004

What aspects of web management is LIS claiming as its jurisdiction? Browsing through a book like Rosenfeld's and Morville's (2003) text on information architecture suggests there are a number of candidates (for example, design of taxonomies, arrangement and navigation of content). The level of interest evident in the regular practitioner literature and conference programmes in LIS would indicate that at least some claim is underway. But does a stronger and more carefully articulated claim of "jurisdiction" need to be made?

More generally, the relevant question is to what extent jobs ads indicate the dimensions and/or the relative significance of changes in jurisdiction. They would

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seem to indicate, even if somewhat “bluntly” (Cullen 2004), some of the requirements of employers. Therefore job ads would seem to provide evidence, if not of jurisdiction, then of changes in the perception by employers of that jurisdiction.

Take in Table VIII. Generic vs. jurisdiction-defining categories

Whether this increased requirement for **Behavioural characteristics** and **Interpersonal skills** is part of a wider workplace demand for these skills (i.e., do job ads for similar professions also include a growth of this type of specification), or whether it is more marked in LIS warrants consideration. Even if it is part of a wider trend it is worth considering what the increase in the specification of these requirements says about the LIS profession and LIS work, that is the message sent about the value of the specialised knowledge and skills when much of the knowledge and skills called for in job ads are not ones specific to the field. Perhaps an explanation for the trend can be found in a paper by Tennant (1998) which acknowledges the speed of knowledge and skill obsolescence in the LIS workplace and which presented a list of personal characteristics (for example, flexibility, good interpersonal skills) which Tennant believed employers should be seeking.

Australia vs the US

Similarly re-grouping the international data of Table III provides another slant on the relative status of LIS as a profession. On inspecting the results (Table IX), the categories **Management**, **Environment**, **Common Workplace Requirements** and **Generic skills** rank appreciably higher in the minds of Australian employers. **E-Resources** and **Web Design and Maintenance**, while becoming more prominent in the Australian data, as mentioned previously, are relatively less in demand than they are in the US job ads.

The American employers seem to rank jurisdictional knowledge higher than their Australian counterparts. This probably reflects the different social and political demands being faced by the LIS “professional project” in the respective countries. One indicator of this for the US, already remarked on, is the more uniform and demanding entry to the profession, via the (graduate-level) MLS qualification. The ALA oversees the content of MLS through the accreditation process, a situation that also exists in Australia through ALIA, but which, due to the myriad of possible qualifications, conveys a less clear message to those outside the profession. The role and value of accreditation has been and continues to be the subject of debate in both countries (Saracevik, 1994; Browne, 1999). Professional differentiation and identification, and employers’ relationships with the profession, at least as it shows in their job ads, appears to be being more vigorously pursued in the US than in Australia

Take in Table IX. Generic vs. jurisdictional categories

Conclusions

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While the picture of the LIS professional as seen through job ads is not a complete one, the analysis of the semantics of the ads provides a rich source of data about the profession and the knowledge, skills and competencies wanted by employers. In addition, the method used exposed the interrelationships within the terminology and so has provided relatively accessible indicators of the dynamic state of librarianship, and in doing so has revealed some cross country differences. The ads also indicate aspects of LIS as a profession, as it determines the jurisdiction of its expertise, and the nature of its relationships with certain outside bodies, such as employers. It is clear that there are variations over time and internationally. These can be interpreted as reflecting variations in the persona of a profession, as it ceaselessly works at developing and maintaining its identity in different social and technological contexts.

The literature makes clear that the professions are not static, and there does not seem to be any one ideal configuration in the "system of the professions" which when attained allows any lessening of effort. Rather it is helpful to think of "being a profession" as an ongoing "project", that can be enhanced or degraded by the collective decisions made in developing and maintaining its own self identity, particularly in what it believes to be important in defining itself as a profession. Also formative are responses to external challenges to that identity, and taking advantage of opportunities to make new ground and establish it further. The seizing of opportunities in a rapidly changing environment has received a great deal of attention in the LIS literature though much of the discussion has not been very focussed, nor addressed what should be dropped to "make space" for the innovations, or as no longer relevant in the changing information landscape.

Many of the skills and characteristics reflected in the job ads for the LIS profession in Australia and the US have not been explicitly claimed as established LIS skills, nor can they be. Sometimes ads look for librarians with these skills, sometimes ads, especially those from Australia, look for people with these skills, irrespective of whether they are a librarian or not and whether or not the place of employment is a library. Does this, coupled with the increasing reliance on electronic media and the skills and competencies required to manage these, indicate that libraries are employing staff with qualifications in areas other than librarianship or information management, for example, computing, information systems and information technology? If so, will this lead to the composite information professional with a cross section of all information skills, or will it signal the beginning of the end for specialist librarians and information managers, and perhaps a corresponding change in the focus and concerns of libraries, librarians and library schools?

While librarianship is not the only profession grappling with dramatic changes brought about by technology and the resultant workplace change, librarianship is one of the few professions suffering the appearance of a decline, and a great deal of questioning from within as well as externally about the ongoing need for, or viability of, the profession. This is despite that in today's information rich society, the LIS skills and competencies of organising and managing information, and providing people with the information they need when and where they require it, have never been more necessary.

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Data from both studies reported here confirm the reviewed literature and anecdotal evidence that there is a growing lack of clarity about the skills, competencies and qualifications required for professional librarians and the jurisdiction of librarianship. These issues need to be faced and addressed by practitioners and educators together. This is an unfinished story, of course, and there are elements of professionalism that have not been touched on. Nevertheless, the two job ad studies suggest some of the challenges ahead for the LIS profession and its associations, and how researchers and practitioners might best contribute, in various ways, to enhancing a profession which, while living in "interesting times", would seem to have a great deal to offer yet.

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Notes

1. White and McCain (1998) and McCain (1990) provide detailed explanations of co-citation and co-word analytic techniques. Cronin and Atkins (2000), Wilson, (1999) and Borgman (1990) offer examples of these methods' breadth of application.
2. ALIA is the Australian Library and Information Association and ALA is the American Library Association. Additionally, in Australia, ALIA accredits programs of two years full-time study at technical colleges for paraprofessional staff (library technicians).

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Table I. Content analysis categories

Category Label	Examples of Dictionary Terms
Archives & Records Management	Archives, Dataworks, Documentum, EDMS, records, records management
Behavioural Characteristics	Business acumen, charismatic, committed, creative, energetic, independent, integrity, leadership, sense of humour, self-motivated
Client Services	Children's, customer, outreach, public service, remote, service delivery, user service
Common Workplace Requirements	Anti-discrimination, equal opportunity, diversity, equity, ethics, health and safety
E-Resources	Bloomberg, CDROM, Datastream, Dialog, digital, electronic, Factiva, online
Environment	Cutting edge, demanding, diverse, fast-paced
Generic IT Skills	FTP, MS Office, Word processing, spreadsheet, telnet
Generic Skills	Copyright, drivers license, legislation, lifelong learning
Hardware	Information technology, TCP
Information Services	Bibliographic instruction, information literacy, reader education, training program, user education
Integrated Library Mgmt Systems	Automated library systems, DB Textworks, Ex Libris, Innopac, library management system, Unicorn, Voyager
Interpersonal Skills	Co-operative, coach, collaborative, negotiation, communication (oral, written, presentation), liaison, listen
Knowledge Management	KM, knowledge management
Management	Financial management, human resource management, supervision, staff training, marketing, performance review, project management, quality control, strategic planning
Programming Languages	HTML, Java, Linux, Perl, SQL, Unix, XHTML, XML
Reference Services	Database searching, information searching, information retrieval, information service, internet search, literature search, reference
Technical Services	Cataloguing, AACR, Bibliographic utilities, collection management, database management, ILL, metadata, serials
Web Design and Maintenance	Content management, internet, intranet, content developer, WCMS

Table II. Number of ads by type of library and country

Library type	N AUS	% AUS	N US	% US	N Total	% Total
Public Libraries	42	23.0	46	22.7	88	22.3
Special Libraries	106	57.9	53	25.0	159	40.2
Academic Libraries	35	19.1	113	53.3	148	37.5
Total by location	183	100	212	100	395	100

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Table III. Qualifications specified per job ad Australia/US comparison

	Australia		US		Total
	N	%	N	%	N
No qualification specified	68	37%	20	9%	88
Professional library qualification ALA or ALIA recognition	75	41%	159	75%	234
Other qualifications	15	8%	8	4%	23
“Librarian or Library Technician”; or qualifications desirable, highly regarded or preferred; or qualifications or experience	25	14%	25	12%	50
	183		212		395

Table IV. Categories ranked by frequency: Australia/US study

Category Label	AUS Rank	US Rank	Diff. in rank
Interpersonal Skills	1	1	0
Behavioural Characteristics	2	3	1
Management	3	8	5
Technical Services	4	2	2
Environment	5	9	4
Reference Services	6	4	2
Client Services	7	6	1
Common Workplace Requirements	8	17	9
E-Resources	9	5	4
Generic Skills	10	16	6
Integrated Library Management Systems	11	13	2
Web Design and Maintenance	12	7	5
Generic IT Skills	13	11	2
Information Services	14	10	4
Archives & Records Management	15	12	3
Hardware	16	14	2
Knowledge Management	17	18	1
Programming Languages	18	15	3
A category occurring in the most number of cases is ranked 1. A category occurring in the least number of cases is ranked 18.			

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Table V. Representation of dictionary category clusters in Australian and US

	Australian Clusters	US Clusters
Cluster 1	Behavioural Characteristics, Interpersonal Skills, Environment, Technical Services, Reference Services, E-Resources, Management, Client Services, Generic Skills, Common Workplace Requirements	Behavioural Characteristics, Interpersonal Skills, Environment, Technical Services, Reference Services, E-Resources, Management, Client Services, Web Design and Maintenance, Information Services
Cluster 2	Archives and Records Management, Knowledge Management	Integrated Library Management Systems, Hardware
Cluster 3	Web Design and Maintenance, Generic IT Skills	Programming Languages, Generic IT Skills
Outliers	Information Services, Integrated Library Systems, Programming Languages, Hardware	Knowledge Management, Archives and Records Management, Generic Skills, Common Workplace Requirements

Table VI. Qualifications specified in Australian job ads over time

	Professional library qualification - eligible for LAA/ALIA recognition		No qualification specified		Other qualifications		Total	
	N	%	N	%	N	%	N	%
2004	13	33	18	47	7	18	38	100
1994	16	40	15	38	9	23	40	100
1984	16	62	7	27	3	12	26	100
1974	23	74	7	23	1	3	31	100
Total	68	50	47	35	20	15	135	100

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Table VII. Number of Australian ads in which categories appeared

Number of Australian ads in which categories appeared (ranked by the 2004 frequency)								
	1974		1984		1994		2004	
	N	%	N	%	N	%	N	%
Interpersonal skills	7	22.6	6	23.1	21	52.5	26	68.4
Behavioural characteristics	5	16.1	3	11.5	10	25.0	24	63.2
Web design and maintenance	-	-	-	-	-	-	18	47.4
Environment			1	3.9	9	22.5	15	39.5
Management	6	19.4	4	15.4	12	30.0	15	39.5
Reference service	20	64.5	9	34.6	13	32.5	15	39.5
Client services	5	16.1	2	7.7	6	15.0	14	36.8
Common workplace requirements	-	-	5	19.2	7	17.5	12	31.6
Technical services	19	61.3	8	30.8	9	22.5	10	26.3
E-Resources	-	-	1	3.9	-	-	9	23.7
Generic skills	-	-	1	3.9	6	15.0	8	21.1
Generic IT Skills	-	-	-	-	2	5.0	5	13.2
Archives & records management	-	-	2	7.7	2	5.0	4	10.5
Hardware	-	-	1	3.9	1	2.5	3	7.9
Integrated library systems	-	-	5	19.2	5	12.5	3	7.9
Information services	3	9.7	1	3.9	1	2.5	2	5.3
Programming languages	-	-	-	-	-	-	1	2.6
Knowledge management	-	-	-	-	1	2.5	-	-
Total No. of Ads	31	-	26	-	40	-	38	-

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Table VIII. Generic vs. jurisdiction-defining categories

Generic vs. Jurisdiction-defining categories									
(Number of Australian ads in which categories appeared, ranked by the 2004 frequency. Frequency of mentions in total number of mentions)									
		1974		1984		1994		2004	
		N	%	N	%	N	%	N	%
Total no. of mentions		65	100	49	100	105	100	184	100
Generic Knowledge		18	28	21	43	68	65	109	59
	Interpersonal Skills	7		6		21		26	
	Behavioural Characteristics	5		3		10		24	
	Environment			1		9		15	
	Management	6		4		12		15	
	Common Workplace Requirements			5		7		12	
	Generic Skills			1		6		8	
	Generic IT Skills					2		5	
	Hardware			1		1		3	
	Programming Languages							1	
Jurisdictional Knowledge		47	72	28	57	37	35	75	41
	Web Design and Maintenance							18	
	Reference Service	20		9		13		15	
	Client Services	5		2		6		14	
	Technical Services	19		8		9		10	
	E-Resources			1				9	
	Archives & Records M'ngt			2		2		4	
	Integrated Library Systems			5		5		3	
	Information Services	3		1		1		2	
	Knowledge Management					1			

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Table IX. Generic vs. jurisdictional categories

Generic vs. Jurisdictional Categories				
	Category Label	AUS Rank	US Rank	Difference in rank, relative to US (B – A)
Generic Knowledge				
	Interpersonal Skills	1	1	0
	Behavioural Characteristics	2	3	+1
	Management	3	8	+5
	Environment	5	9	+4
	Common Workplace Requirements	8	17	+9
	Generic Skills	10	16	+6
	Generic IT Skills	13	11	-2
	Hardware	16	14	-2
	Programming Languages	18	15	-3
Jurisdictional Knowledge				
	Technical Services	4	2	-2
	Reference Services	6	4	-2
	Client Services	7	6	-1
	E-Resources	9	5	-4
	Integrated Library Mgmt Systems	11	13	+2
	Web Design and Maintenance	12	7	-5
	Information Services	14	10	-4
	Archives & Records Management	15	12	-3
	Knowledge Management	17	18	+1
A category occurring in the most number of cases is ranked 1. A category occurring in the least number of cases is ranked 18.				