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A tale of two markets: employer expectations of information professionals in Australia and the United States of America

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Abstract

*This paper reports the findings of an exploratory study of 395 library job advertisements in Australia and the USA from August to October 2004. To investigate similarities and differences between the two countries' data we conducted a content analysis and co-word analysis of professional job ads from academic, public and special libraries. **Interpersonal Skills, Behavioural Characteristics, and responsiveness to a changeable Environment¹** were identified as critical requirements in both countries.*

Introduction

This study reports the results of an exploratory investigation of the Library and Information Studies (LIS) professional employment market in two countries: Australia and the United States of America (USA). We use job advertisements (job ads) as the data source to examine what similarities and differences exist between the two countries in employers' preferences for professional competencies and personal characteristics of new employees. The study includes positions in academic, public and special libraries. The data were gathered over an

¹ All dictionary categories from this and other studies are distinguished from other text by being printed in bold.

eight-week period from late August to mid-October 2004. The Australian data were position advertisements in two major Australian newspapers and their associated job search websites. The American data were taken from the employment postings listed on the *Drexel University Job Postings* (www.cis.drexel.edu/jobs/), a site with open public access.

There are differences between Australia and the USA in the manner in which positions are advertised and the qualification for professional jobs. Many LIS schools in the USA have online job boards, which are a major venue for advertising jobs. In Australia recruitment is often carried out by private employment agencies that may place advertisements (ads) in major newspapers or recruit directly from their books. The qualifying criterion for the American professional positions is that the job postings specifically require a master's degree in LIS, which is consistent with the standards set by the American Library Association (ALA). Australian professional jobs are not as easily identified. In some job ads, professional LIS qualifications are not specified and the researchers used the available information including position titles, work descriptions and salary level to determine whether a position met the criteria for a professional job.

An investigation of the knowledge, skills and other preferences of prospective employers are of interest to LIS practitioners, job seekers and educators in any country. Practitioners and job seekers are interested in career pathways and possibilities, and educators are focused on the success of their graduates in gaining employment and on what makes graduates attractive to employers. Employers also have an interest in the findings of this type of investigation as they can be of help in identifying developments in the field and can be used to inform the content of their own position advertisements.

The decision to undertake this comparative analysis of job advertisements from the USA and Australia grew out of interest in how the field is developing in the two countries. We believe that added reliability would be given to the comparative aspect of the project if there were one project that collected data for the same time period and the data were subject to analysis using the same methods.

Background

Both the USA and Australia have professional LIS associations—American Library Association (ALA) and the Australian Library and Information Association (ALIA)—that accredit entry-level professional LIS education programs. In both countries the programs are currently based in universities. In the USA the basic qualification is a master's degree. In Australia entry-level professional programs exist at undergraduate (almost all of three year full-time duration), postgraduate diploma (one year full-time duration) and master's levels (one and a half year full-time duration).² As both countries have accreditation processes, it is probably not unreasonable to conclude that the majority of job advertisements would specify that applicants for professional positions have obtained the appropriate qualifications. The uniformity of the course type and structure in the USA makes this specification easier for employers than in Australia with its several levels of university education offering a route to an accredited qualification.

The listing of positions on LIS school electronic notice boards is a well-established way of

² Additionally, in Australia, ALIA accredits programs of two years full-time study at technical colleges for paraprofessional staff (library technicians).

advertising positions in the USA with employers often sending their job notices to more than one school. A number of professional associations, such as the Association of College and Research Libraries (ACRL) and the Special Library Association (SLA), also have active online job boards. Although some job notices appear in newspapers and in magazines, such as *American Libraries*, our perception is that online job ads are predominant. LIS school job boards list positions as a public service and generally charge no fee.

Most Australian permanent positions are advertised in newspapers and/or on their electronic sites. Industrial relations legislation encourages public advertising of positions in publicly funded libraries, which includes almost all academic libraries. Non-permanent positions and special library positions in corporations do not have the same requirements; however, special libraries usually advertise directly or go through job placement agencies that advertise when necessary.

The length and detail of online position announcements is generally much greater than in print ads, which is expected given the much greater cost associated with print ads compared with online ads. However, print ads often refer potential applicants to a web site for further information. Where available, this information was included in the analysis.

Definitions

- ❖ *Job/position advertisement and Job posting.* Job/Position Advertisements are advertisements in newspapers. Job Posting is commonly used in America to describe a position advertisement on an electronic listing. The electronic listings for the Australian newspapers are referred to as their Job Search Websites.
- ❖ *Academic library* includes university and college libraries but not K-12 school libraries.
- ❖ *Public library* includes large public libraries such as state libraries as well as local public libraries.
- ❖ *Special library* includes both corporate libraries and government funded special libraries.

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. While Drexel University is located in the populous northeast of the USA, 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. 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. 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.

Literature

A number of studies have analysed LIS job advertisements as a means of assessing the content of LIS jobs and their change over time as well as the nature and extent of emerging job opportunities. Some researchers have looked at the field in general, interested in both the robustness of demand for traditional jobs and how these jobs have changed in response to changing technology and demands (Moore 1987; Cronin et al. 1993; Brittain 1996)

As LIS work can be varied, some researchers have focused on a particular type of library or worker; for example, academic libraries or reference librarians. A number of studies have gathered data over a number of years seeking the nature and extent of change. Perusal of the literature suggests that more investigations have focused on areas where it is believed change has been great, for example technology and digital resources.

Xu (1996) used job advertisements in *American Libraries* over the period 1971 to 1990 to assess the effect of automation on job requirements for catalogers and reference librarians. He found an increasing demand for computer skills in both areas though the types of skills were different for the two areas. Bibliographic instruction duties for reference librarians increased over the period. The demand for oral and written communication ability first appeared in the period 1976-80 with the proportion of jobs specifying this increasing to one-fourth for cataloguers and one-third for reference librarians by the period 1986-90.

Heimer (2002) looked at job advertisements in *American Libraries* from 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% of cases and training was specified in 49% of cases. Another American study (Croneis and Henderson 2002), using advertisements 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. The duties of instruction/training and collection development liaison occurred to a similar extent in both types of positions. A 2000 investigation of 250 online academic librarian job advertisements revealed requirements for **Technical Skills**; **Interpersonal and behavioural skills**; and, **Service delivery competencies** (Marion 2001). This study revealed a broad range of job titles, which were often quite different from traditional titles.

Studies without the technology emphasis include White (1999) who used job advertisement data for 1990 to 1998 to research 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. White found that most advertisements cited communication as a required skill and that a Master's in LIS was also a requirement for most positions. It is also worth noting that the titles of positions were varied though the majority of titles conveyed their reference-related nature. Lynch and Smith (2001) looked at academic jobs between 1973 and 1998 and found that by 1998 academic library jobs routinely included 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.

Research in countries other than the USA has produced a picture of the job market that shares similarities with the USA results. A study of position advertisements in two major Irish newspapers revealed the importance of communications and information technology skills (Cullen 2000). The librarian's instructional role was investigated by Clyde (2002), who monitored LIBJOBS, the international listserv of the International Federation of Library Associations (IFLA), for three months in 2002. She found that approximately half the positions (150 of 291) included a component of education and training. The most frequent specification was for bibliographic/library instruction (47%) with the training of library and other staff occurring in 34% of the advertisements. Information literacy/information skills instruction was noted for 15% positions. Two-thirds of university and college libraries listed instructional tasks while 18% of public libraries and 17% of special libraries did so.

Another strand of literature addresses the competencies that LIS professionals should possess. In some cases the impetus for this development has been professional associations, for example the American Special Library Association (SLA) (<http://www.sla.org/content/learn/comp2003/index.cfm>). Library educators have also sought to identify competencies as input into program development (Fisher, 2001; Middleton, 2003; Gorman and Corbitt, 2002). As with other areas of library work the demands of new information technologies has influenced some of this research. Tennant (1999) listed skills he believed were necessary for those managing digital collections and services. In an earlier paper, he acknowledged (1998) the speed of knowledge and skill obsolescence and presented a list of personal characteristics (e.g. flexibility, good interpersonal skills) he believed employers should be seeking.

The studies reviewed generally found an increase in required computer and IT skills as well as increasingly varied job titles. They also revealed increased requirements for particular behavioural characteristics and interpersonal skills in addition to professional competencies. Bibliographic instruction (in Australia more commonly referred to as information literacy programs) is an important part of many LIS positions. Collection development was also frequently identified as a required area of expertise.

Questions guiding the study

This study addresses the following questions:

1. What technical skills, LIS knowledge and competencies and behavioural characteristics do employers list in current job ads for professional librarians in Australia and the USA?
2. Have these changed from those identified in previous studies? If so, how?
3. Are there any differences between the skills, competencies and behaviours required between the USA and Australia?

Methods

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 8-week period from the 21 August 2004 until the 12th October 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 and generally advertise more senior positions than does *SMH*. Ads included in the study specifically asked for a librarian or LIS qualifications. Ads from the online sources were already in digital format. Print ads were scanned using OCR techniques.

The USA 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 ALA accredited Master's degree program. The job board is a well-known and long-established resource for employers and job seekers. The job board 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.

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 this study, 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 categorization dictionary was created from a combination of sources including: (1) counts of the most frequently mentioned terms in the ads that were relevant to the study; (2) a literature review; and (3) our own knowledge of the LIS industry. We also used the subject index of *Library and Information Science Abstracts (LISA)* to assist with the creation of synonyms and the allocation of terms to categories. Table 1 contains the categories used for the content analysis. Note words and phrases that make up the different categories, as these words and phrases are from the data e.g. **Behavioural Characteristics** of charisma, independence, and leadership.

Table 1. Content Analysis Categories	
Category Label	Examples of Dictionary Terms
Archives & Records Management	Archives, Dataworks, Documentum, EDMS, 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

The dictionary of 18 broad categories was used to analyse the text from the job ads. 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 and behavioural characteristics were listed in the ads.

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 concerned with the structure of the job market; therefore, a measure of co-occurrence similarity provides more 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.³

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). The two data sets were additionally analysed with a weighted multidimensional scaling (MDS) procedure, also called individual differences scaling or INDSCAL, available in SPSS. Using several methods to explore the data enables us to gain a more complete picture of the underlying structure.

Results

The total number of ads is 395 comprising of 212 USA and 183 Australian. Table 2 shows the breakdown by type of library. However data for each country was analysed at an aggregate level.

³ White and McCain (1998) and McCain (1990) provide detailed explanations of co-citation and co-word analytic techniques. Cronin and Atkins (2000), Wilson, C. (1999) and Borgman, C. L., Ed. (1990) offer examples of these methods’ breadth of application.

Table 2. Breakdown by type of library						
Library type	USA No.	USA %	AUS No.	AUS %	Total no.	Total %
Public Libraries	46	21.70%	42	22.95%	88	22.28%
Special Libraries	53	25.00%	106	57.92%	159	40.25%
Academic Libraries	113	53.30%	35	19.13%	148	37.47%
Total by location	212	100.00%	183	100.00%	395	100.00%

As a first stage of data analysis, the dictionary categories were ranked according to the frequency of their occurrence in the ads (see Table 3). Some similarities between the two countries can be seen in the relative position of several categories while differences also emerge. **Interpersonal Skills**, **Behavioural Characteristics**, and **Technical Services** occur very frequently in the both the Australian and USA data with **Interpersonal Skills** ranking first in both countries. By contrast **Knowledge Management** is not very visible in the ads of either country. Advanced computer skills, such as **Programming Languages**, are also infrequently mentioned, though more frequently in the USA data.

Interesting differences are visible in the ranking for **Management**, which is a much more commonly used term in the Australian ads than in the USA ads. The opposite is true for **Web Design and Maintenance**, which is ranked higher for the USA than the Australian ads. Australian ads are much more likely to mention **Common Workplace Requirements**. This category appears less frequently in the qualifications and skill requirements in the USA ads; however, that may be partially an artifact of the manner in which the USA ads are written. Reference to equal opportunity and diversity are often listed at the end of an ad describing, “University X does not discriminate according to race, gender, etc.,” which is mandated by the USA government.

As anecdotal evidence suggests that this is an important part of library work; the less frequent appearance in the Australian data of **Information services** which includes information literacy, reader education, training and bibliographic instruction is interesting and puzzling and will be returned to later.

Also interesting is the juxtaposition of a fast-paced, cutting edge **Environment** and **E-resources** in the two countries studied. In Australia the **Environment** is the fifth ranked and in the USA ninth ranked. Alternatively in the USA **E-resources** in fifth ranked and in Australia ninth.

Table 3. Categories Ranked by Frequency			
Category Label	AUS Rank	USA Rank	Difference 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 Mgmt 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.			

Following is the cluster analysis and MDS for the countries individually, followed by a comparison of the two data sets.

United States data

The cluster analysis is based on the pattern similarity (correlations) of the 18 categories in the dictionary. One output of a cluster analysis is a dendrogram, which is a graphical display of the clustering process (Figure 1). The hierarchical agglomerative clustering approach used in this research begins by joining two terms with the most similar patterns according to the distance criterion (average linkage). Subsequent terms are joined to existing clusters and the clusters are combined until one large cluster results that encompass the entire set of terms. While there is no best number of clusters, an informative picture emerged from the data at the seven-cluster level noted by the vertical line. At this point one large cluster, two small clusters and several isolates emerge. The isolates are only isolates at this level. As the number of clusters is decreased they link to the rest of the term set.

The large cluster consists of ten terms—**Behavioral Characteristics, Interpersonal Skills, Environment, Technical Services, Reference Services, E-Resources, Web Design and**

Maintenance, Management, Client Services, and Information Services. These terms portray a cluster that might be characterized as describing core library skills and competencies required by employers, especially for the academic and special library settings that figure prominently in the USA data set.

The two small clusters consist of two pairs of categories, which are both related to technical computer-focused aspects of LIS work. The first pair is computer **Hardware** and **Integrated Library Management Systems**. The second pair is **Programming Languages** and **Generic IT Skills**. Taken together these categories relate to the skills often associated with systems librarian positions. Systems librarians are responsible for the computer systems vital to the operation of most USA medium to large libraries.

Four isolates—**Archives and Record Management, Knowledge Management, Generic Skills, and Common Workplace Skills**—complete the dendrogram. The pattern of co-occurrence of these categories reveals less similarity to the other terms in the dictionary.

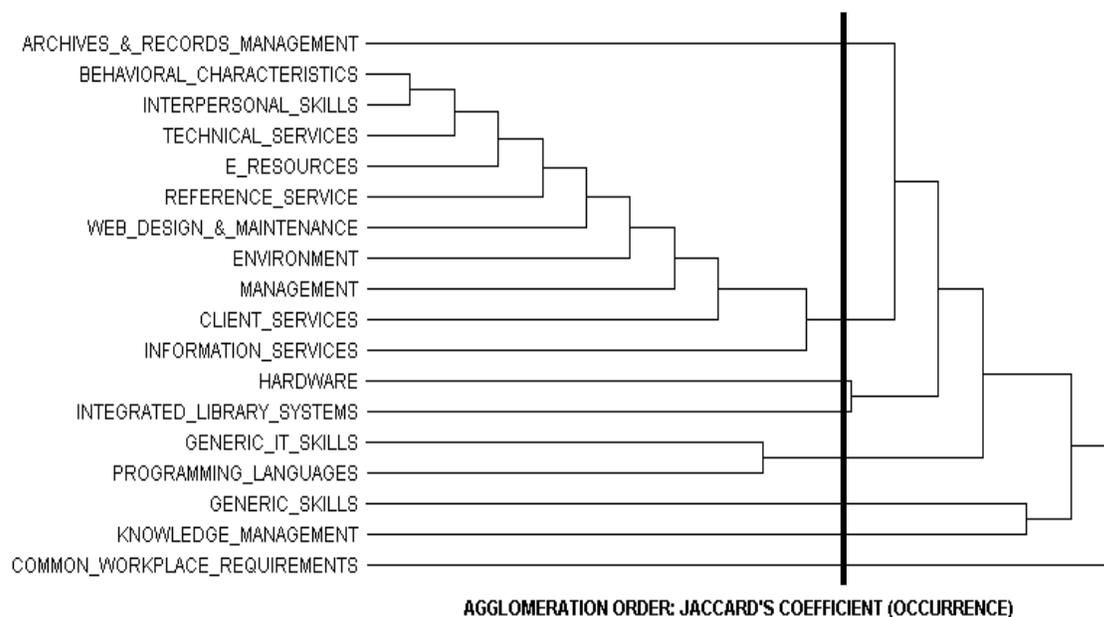


Figure 1. Cluster Analysis USA data

Multidimensional scaling (MDS) uses the same similarity (correlation) matrix as cluster analysis to study the underlying structure of the data. Often used jointly with cluster analysis, MDS produces a two- or three-dimensional graph or “map” in which the co-occurrence patterns of the terms are represented visually on the map. Thus, two terms with similar co-occurrence patterns are represented as lying close to each other on the map while terms with dissimilar patterns are placed far from each other. The optimal MDS solution for the USA data is a three-dimensional map (RSQ=.84, stress=.23) in which RSQ is the amount of variance explained by the solution, and stress is the amount of distortion of the data required to fit the solution. Three-dimensional maps are very difficult to represent adequately on a printed page, therefore, Figure 1 displays only the first two axes that also explain the greatest variance. The axes represent underlying dimensions or structure of the data set.

The horizontal axis (X) represents a continuum from computer **Hardware** and **IT Skills** on the left to public services (**Reference and Information Services**) on the right. The Y-axis

displays a similar continuum from **Web Design and Maintenance**, **Integrated Library Management Systems** and **Programming Languages** on the top to the related topics of **Knowledge Management** and **Archive and Record Management** on the bottom. In general, in the top left of the map appear categories related to computer skills while on the right are the skills and competencies related to public service. Axis Z (not shown) focuses on **Common Workplace Requirements** and **Generic Skills**. The most centrally located categories on the map are **Interpersonal Skills**, **Behavioural Characteristics**, and **Environment**.

Taken together, the results from the cluster analysis and the MDS procedure present a picture of the data that portrays the large core cluster of library skills and competencies located in the middle right of the map. On the lower right is the **Management** and **Service** cluster. The left side of the map, particularly the upper portion, is focused on technical computer skills. The four isolates, with fewer connections to other terms, are placed on the lower left side of the map.

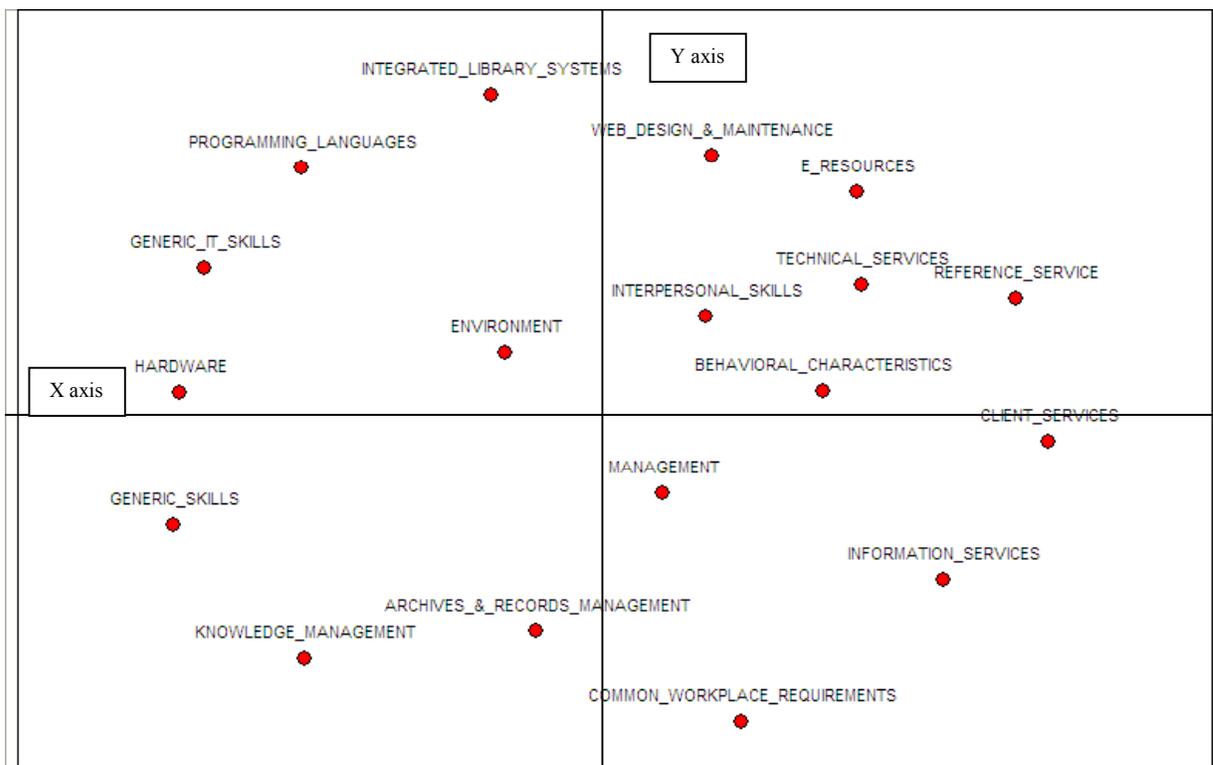


Figure 2. Dims 1-2 MDS map of USA data (RSQ=.84, stress=.23)

Australian data

The same procedures described above were also performed on the matrix of co-occurrence counts obtained from the Australian job ads. Similarity profiles were created from the matrix of frequency counts and the resulting matrix was explored with cluster analysis and MDS. Cluster analysis of the Australian data revealed that the most informative picture emerged at the seven-cluster level, which resulted in one large cluster, two small clusters and four isolates. Figure 3 displays the dendrogram with the bold vertical line showing where the cluster divisions were made. The pattern of clusters is similar to that found in the USA data but the categories assigned to the clusters differ somewhat from the USA clusters.

The large cluster is composed of ten categories—**Environment**, **Interpersonal Skills**,

Behavioural Characteristics, Management, Client Services, Technical Services, Reference Services, E-Resources, Generic Skills, and Common Workplace Requirements. Once again this cluster seems to describe what employers see as core librarian skills and competencies across academic, special and public libraries.

Two pairs of categories compose the small clusters. **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, sometimes as part of the same department. The second small 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.

The four isolates are: **Hardware, Programming Languages, Integrated Library Management Systems, and Information Services.** The first three categories are related in that systems librarians are likely to possess these skills while librarians in public service or technical service areas in the library are less likely to be competent in these areas. **Information Services** is in a somewhat surprising position since one might expect that skills in bibliographic instruction and information literacy, reader education, and user training would be a core competency. Apparently, such competencies exhibit less similarity with other categories in the dictionary. Analyses of ads including the terms categorised as **Information Services** for the Australian ads showed no one consistent pattern of linkages - sometimes these links were with reference services, sometimes with web services and sometimes with resource management. This lack of consistency in linkages makes this category appear an outlier, whereas it is likely to be a core competency.

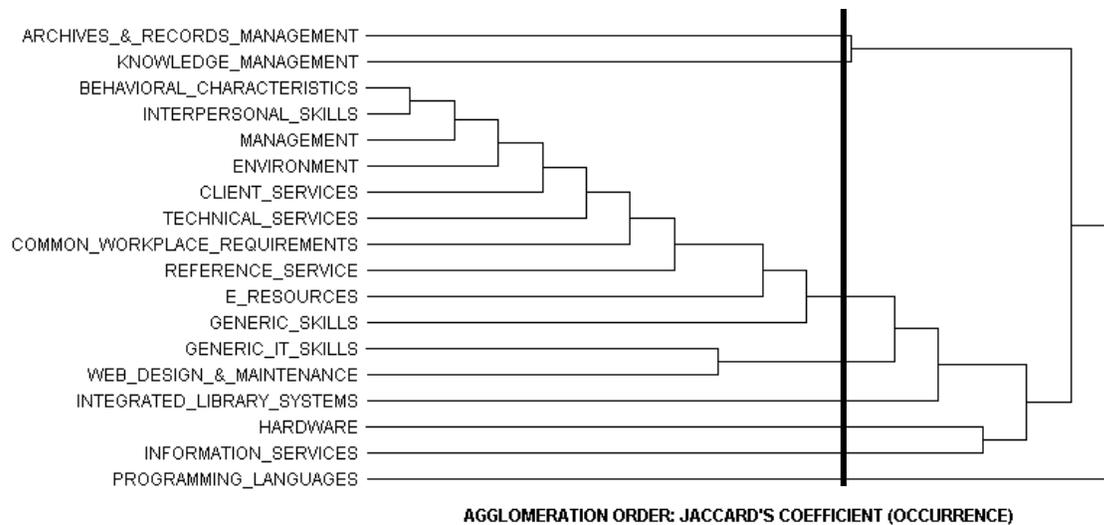


Figure 3. Cluster Analysis Australian Job Ads

The optimal solution of the multidimensional scaling procedure for the Australia data produced a three-dimensional map (RSQ=.87, stress=.22 – similar to that of the USA data). Figure 4 displays the first two dimensions of the map. The placement of the categories is rather similar to that in the USA map. The horizontal (X) axis represents a continuum from computer-related skills on the left to the more commonly occurring core library skills and competencies on the right. Once again **Interpersonal Skills** and **Behavioural Characteristics**, and **Environment** occupy positions close to the centre of the map, which is

an indication of their ties to many other categories.

The vertical (Y) axis appears to represent isolated categories from the cluster analysis—**Information Services** and **Integrated Library Systems**—at the top while the bottom pole is anchored by **Knowledge Management**, which is usually associated with corporate libraries. **Information Services** competencies are often seen in public library ads so this axis may express a public library to corporate library dimension.



Figure 4. Dims 1-2 MDS map of Australia data (RSQ=.87, stress=.22)

Comparison of Australian and USA data

The overall placement of the categories is rather similar between the USA and the Australian data except for the placement of **Information Services**. We wanted to explore whether there were systematic differences between the data sets despite the apparent similarity, therefore, the two data sets were compared to determine whether there are different emphases given to the underlying dimensions of the data structure by the two countries' ads.

Individual differences scaling performed jointly highlights the relative different emphasis between the two data sets. The output of a weighted MDS analysis displays a summary map of the best configuration when the input matrices are considered together and a set of weights that represents the different emphases given to the dimensions of the group subject space in the separate data matrices (Coxon and Davies 1982). Space constraints do not permit publication of the summary display or the data coordinates for each of the data sets but Table 3 illustrates the comparative importance placed on dimensions of the stimulus space by each set of job ads.

The INDSCAL dimensions represent the orthogonal directions where the variation among the matrices is greatest, which tends to make interpretation relatively easy.

Relative weight given to:	Dim 1 (X-axis)	Dim 2 (Y-axis)
Australia	.67	.27
United States	.22	.42

Dimension 1 (X-axis) places **E-Resources, Web Design and Maintenance, and Hardware** at one pole with **Client Services and Reference Services** at the other pole. Thus, Australian job ads emphasize the web and electronic resources versus public services more than the USA. For the USA, Dimension 2 (Y-axis) has a continuum of **Programming Languages and IT Skills** at the top of the map with **Interpersonal Skills, Behavioural Characteristics, and Management** at the bottom. In other words, the axis displays the familiar computer to people-focused continuum we saw in the maps.

These results are consistent with the location of categories in the MDS maps (Figures 2 and 4). **Web Design and Maintenance** appeared in the large core cluster in the USA data (Figure 2) whereas the same category was placed on the opposite side of the Australian map with the technical computer categories (Figure 4). In the cluster analysis the Australian data places **Generic Skills and Common Workplace Skills** with the large cluster whereas in the USA data those categories are isolated. As noted above in the discussion of the clusters those categories include skills not generally written into the USA employment ads. Thus, while the two axes express a technical focus to people-oriented continuum the emphasis is somewhat different.

Discussion

The results of this study provide a snapshot of the job skills and competencies currently deemed desirable by employers seeking to hire professional librarians in Australia and the USA. We gathered data about professional level jobs in order to address the following questions: What knowledge, qualifications, skills, competencies, and personal traits do employers seek from LIS job applicants? Are there differences between Australia and the USA in the desired requirements and qualifications?

This research provides support for several previous 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). 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 USA want employees who are flexible and who readily adapt to change. This suggests that one entering the LIS profession should expect to frequently update his or her 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,

who are often termed systems librarians. Systems librarians adapt information systems knowledge to the demands of the library environment. Most modern libraries depend heavily on the computer systems that power our online public access catalogues (OPACs), integrated library systems and other electronic resources. As digital resources assume 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** these technical skills remain a specialty. In the USA, but less so in Australia, web-related skills are commonly required for reference and client service librarians.

Overall the data in this study indicates that employers in Australia and the USA are looking for many of the same skills and competencies. They may place a different emphasis on some categories but the overall picture is similar. Obviously, despite differences, the USA and Australia share many characteristics. It would be valuable to repeat this study but include data from more countries.

Conclusions

This research did not differentiate between data from academic, special, and public libraries. Brief examination of the data from the different types of libraries suggests that there are differences in the emphasis given to particular skills in different library sectors. The next part of the research will examine the sectors in a similar fashion to this report.

While the content of advertisements does not identify the actual characteristics of the individuals hired, they do provide a picture of desired characteristics and also throw light on developments in the field of practice. These findings should be useful to both library educators and job seekers, as respectively, they seek to develop programs and prepare themselves for their job search. Employers may also find the results of use as they provide some guidance to developments in the field.

The results also illustrate the usefulness of content analysis and co-word analyses methods for establishing a baseline for exploring the job market for professional librarians. Content analysis has been used in analyses of the LIS employment picture but this research suggests that wider use of co-word analysis enhances the information obtained from the content analysis.

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