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Investigation of Library Job Demands and Requirements through the Lens of Job Market

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ABSTRACT

This article investigated job demands and requirements in the American Library Association (ALA) job website. The states with the highest number of library and information science (LIS) job openings were California, Texas, Illinois, New York, and Washington. Academic libraries had the highest number of job openings, followed by Public libraries and Government libraries, respectively. The most sought-after LIS job categories were Administration/Management, Special Collections/Archives, Subject Specialist/Liaison, Information Literacy and Instruction, and Collection Development/Acquisitions. A significant majority of library-related jobs required a Master's degree. These findings benefit LIS researchers, educators, professionals, and job seekers.

KEYWORDS

Library job requirements; librarian; library job market; librarian recruitment

Introduction

The impact of information technology (IT) like Web 2.0, digitalization on libraries has been profound, transforming the way they operate and interact with their patrons. From electronic books and e-books to remote access and virtual references, libraries have had to adapt to an increasingly world to remain relevant. This has resulted in significant changes in dynamic environments in library settings and increased requirements for librarians (Meier, 2010; Bronstein, 2015; Rahhal et al., 2022). In addition to traditional library skills, such as reference and cataloging, librarians now need to have a wide range of new technology skills and specialized skills, including digital literacy, technological proficiency, electronic resource management, and data analysis.

Notice that there are gaps (Bronstein, 2015; Rahhal et al., 2019) between the curriculum systems in library and information science (LIS) schools and job demands in the library job market, resulting in challenges in filling positions with qualified librarian candidates. As technology continues to advance, it is essential for LIS programs to adapt their curricula to better prepare graduates for the changing demands in the library job market. By addressing these gaps, libraries can continue to be relevant and effective knowledge hubs for their communities.

It is not surprising that these changes and challenges would be reflected in the library job market. Job requirements for librarians in the library job market include rich

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information like job types, responsibilities, education levels, experiences, technical skills, and expertise. The analysis on these data would reveal the impact of IT on libraries and librarianship from the quite unique perspective. The investigation is based on real job advertisement data in the library job market and presents a large and cohesive picture about demands and requirements of librarians.

The primary purposes or aims of this research study are to investigate library-related jobs on the American Library Association (ALA) job website to gain insights into the landscape of library-related employment opportunities, identify job requirements and demands in the contexts of job category and library type, examine the library related geographic job distribution, and reveal hidden trend and patterns to LIS job demand requirements.

The results of this research study can help (1) researchers in the LIS domains understand the potential research and application fields from the job demand perspective to find practical and real problems that libraries face and conduct research studies to address them, (2) educators in the field improve, revise, and adjust their existing curricular systems and course revisions based on the job market needs to prepare and train students to fit the job market after graduation, and (3) practitioners in various types of libraries to be aware of the trends in their job hiring.

In summary, this research study aims to contribute to the understanding of library-related job opportunities, requirements, and trends. Its outcomes have the potential to drive advancements in research, education, and professional practice within the LIS field.

Literature review

The fast-paced development of information technologies has led to a significant impact on the abilities and proficiencies required by LIS professionals working in libraries and information centers (Bronstein, 2015). However, universities' curricula have not kept up with technological advancements, causing a mismatch between universities and the job market.

In recent decades, the increasing number of job tasks in libraries has led to a high level of multitasking requirement among librarians (Meier, 2010). As a result, librarians need to acquire more skills, but the curricula taught in universities do not provide corresponding skill training well and LIS programs failed to develop personal competencies(Bronstein, 2015), especially when compared to other disciplines such as economics, Management Information Systems (MIS), and IT (Martín-Moreno et al., 2005; Litecky et al., 2012). Silva (2018) found the differences between the skills taught in universities' curricula and the skills required in the job market have finally resulted in the unemployment of graduates.

Appropriate guidance and universities' curricula can help students find job positions in the job market. According to a study, it is recommended that Master of Library Science curricula incorporate a solid understanding of traditional library knowledge, skills, and abilities, while also offering elective courses in public services and administration. Individuals seeking nonprofessional roles should highlight transferable skills such as interpersonal and communication abilities (Maccaferri & Harhai, 2019). Technology

courses vary by program, but it is evident that stronger technology courses are needed in LIS programs (Riley-Huff & Rholes, 2011).

The significance of a LIS degree and previous experience has been highlighted in some research studies. In one study, Hansen (2011) investigated the LIS-related positions' core requirements and found that previous working experience is highly valued by academic libraries. Cunningham and Ruffin (2015) surveyed academic library workers and job seekers to investigate the impact of prior experiences on job recruitment. The study found that both work and education experience are essential for pursuing a career in academic libraries. For the importance of a LIS degree, Cullen's (2000) study indicated that obtaining a professional degree in library and information studies is a necessary requirement. Sanchez-Cuadrado et al. (2010) found holding an academic degree is an essential factor in job recruitment. However, some other studies indicate that a degree is not a prerequisite for obtaining LIS-related jobs. Bjørklund & Audunson's (2021) study found that personal and interpersonal skills are prioritized over a LIS degree in Norwegian public libraries.

There have been scholars who analyzed job advertisements from different periods to uncover trends related to LIS employment. For the trends in job opportunities, Grimes and Grimes (2008) found there was a peak in job openings requiring an MLS in the early 1990s, but a significant drop in MLS prerequisites from 2000 onward. For trends in skill requirements, Zhang (2008) discovered a steady increase in foreign language requirements until the mid-1980s and a subsequent sharp decrease. Several other studies have combined these two trends, Meier (2010) found that while responsibilities are increasing, the number of available jobs is decreasing during 2008–2009, Triumph and Beile (2015) found no significant changes in job post count, duties, location, or education, but observed a decrease in the need for foreign language proficiency and experience, and an increase in the emphasis on computer skills over a 23-years period. In a study focused on the skill requirements for entry-level positions in libraries, it was found that 20% of job advertisements were for such positions (Tewell, 2012).

The distinction between professional and nonprofessional positions in libraries results in varying job qualifications. One study analyzed job ads in Pennsylvania public libraries to compare professional and nonprofessional positions. The findings show that professional positions require a master's degree in LIS and tend to be full-time and in areas like administration, reference, and children's services. Nonprofessional positions tend to be part-time with lower educational requirements in access and children's services. The required experience varies widely in both categories (Maccaferri & Harhai, 2019). In Japan, 82.2% of LIS job ads were for non-regular employees, who were provided with detailed skill requirement descriptions. However, regular employees were not specified with skill competencies in job advertisements (Matsumoto, 2022).

The LIS-related job ads of different types of librarians have also been analyzed or compared. For business librarians, researchers found that technology has transformed the way business libraries operate, including interactions between librarians and patrons. As a result, business librarians should expand their knowledge of technology and understand how patrons use it (Nielsen, 2013). For medical libraries, Noh (2015) thought health information librarians in the future will play a very important role in responding users need of knowledge of health and medical information, health information

resources evaluation guidelines, health and medical terminology, and health information sources, and they identified that demand for health information in libraries has increased. For librarians in public and academic libraries, McClellan (2014) found 37% of LIS-related job listings had marketing-related content. For art librarians, a study has shown that in addition to an MLS degree and previous library experience, knowledge of digital trends, and an outside degree were also commonly required (Stafford, 2016).

Research method

The data for this study were collected from the ALA job website, known as ALA Joblist (2023). This website serves as a primary platform for LIS-related job postings, including those in IT. With over 50,000 members, both ALA members and nonmembers can post job advertisements on the website. It is widely recognized as the main channel for North American libraries to advertise their job openings, and for library job seekers to find relevant employment opportunities. The website covers a wide range of library-related jobs in various settings, including academic/research (college/university) libraries, public libraries, cooperative/consortium libraries, museums, publishing, school library/media centers (K-12), special libraries, corporate libraries, and others. The ALA Joblist has played a pivotal role in numerous research studies within the realm of LIS job analysis. It has been a valuable resource for various investigations, including research on job responsibilities (Meier, 2010), analysis of LIS job advertisements (Yang et al., 2016), assessment of experience requirements (McClelland, 2014), examination of librarian positions in academic libraries (Todorinova, 2018), and scrutiny of government librarian job roles (Sproles & Clemons, 2019). The ALA Joblist has garnered recognition as a job site specifically catering to positions in LIS and technology (Zhang et al., 2021). It has emerged as a data source for academic library job analysis studies, as noted by Meier (2010). Additional platforms within the field, such as the Chronicle of Higher Education, LinkedIn, the Special Libraries Association (SLA) Career Center, and the Library Journal Job Zone were not used because they routinely do not include all types of libraries.

It is important to note that job advertisements are regularly removed from the website once the positions are filled, while new job postings continue to be added. To ensure the completeness of the collected data, data collection was conducted on a weekly basis.

Upon data collection, each individual job was identified and treated as an independent record for further analysis. Several meaningful attributes were defined within each record, including record ID, job title, library type, job category, job location, job entry level, workplace type, job type, job duration, minimum experience, maximum experience, travel requirements, salary range, and ALA accreditation requirements. The job location was determined at the state level. Among these attributes, job category and library type were identified as primary attributes. Library type refers to the different types of libraries that exist to serve the information needs of individuals and communities, while job category determines the nature of a LIS job. The available options for job categories on the website include adult services, children's services, reference, research, technical services, and others. Similarly, the valid options for library types

include Academic/Research (College/University), Association, Government (Federal/State) Library, Library Cooperative/Consortium, Museum, Public Library, Publishing, School Library/Media Center (K-12), Special Library/Corporate, and Other. These attributes lay the foundation for data analysis. Additionally, each job advertisement included a job description comprising requirements, responsibilities, preferred qualifications, and other relevant information.

The cross-tabulation analysis method is utilized to analyze the relationships between two meaningful variables whose data could be divided into mutually exclusive groups. The cross-tabulation analysis method allows researchers to identify patterns and relationships that may exist between the variables, and discover any gaps or inconsistencies in data. After the frequencies of different values or categories of one variable against another variable were tabulated, the proportions of the categories in one variable against another variable were computed, and the association between the variables were revealed. Since the job category defines the nature of a job position and plays an extremely important role in a LIS job advertisement, it was combined with other job attributes like job entry level, work place type, job type, job duration, etc., to perform the cross-tabulation analysis, respectively, in this study.

Inferential statistical analysis is a data analysis method that involves drawing conclusions or making inferences about a population based on data collected from a sample. It determines the likelihood of the data analysis results being representative of the entire population and makes scientific decisions. Chi-square analyses were conducted to examine whether there were significant differences among the investigated library types and whether there were significant differences among the investigated job categories, respectively. The Wilcoxon signed-rank test method was employed to compare paired data from ranked job advertisements from the all states and ranked GDP data from the all states. The results were utilized to analyze whether there were the positive relationships between the number of LIS job posts of each of individual states and its GDP data.

Results and discussion

The data collection period for the ALA job website spanned from December 22, 2022, to May 22, 2023, covering a period of approximately six months. During this time, all job advertisements posted on the website were collected, resulting in a total of 1532 job advertisements. On average, the website added approximately 255.33 new job advertisements per month.

Geographic analysis of the LIS job

The geographic distribution of the collected data is presented in Figure 1. The study encompassed job advertisements from all 50 states of the United States, indicating comprehensive coverage across the nation. Among these states, the top 10 with the highest number of LIS job advertisements during the data collection period were as follows: California with 166 job advertisements, Texas with 97, Illinois with 88, New York with

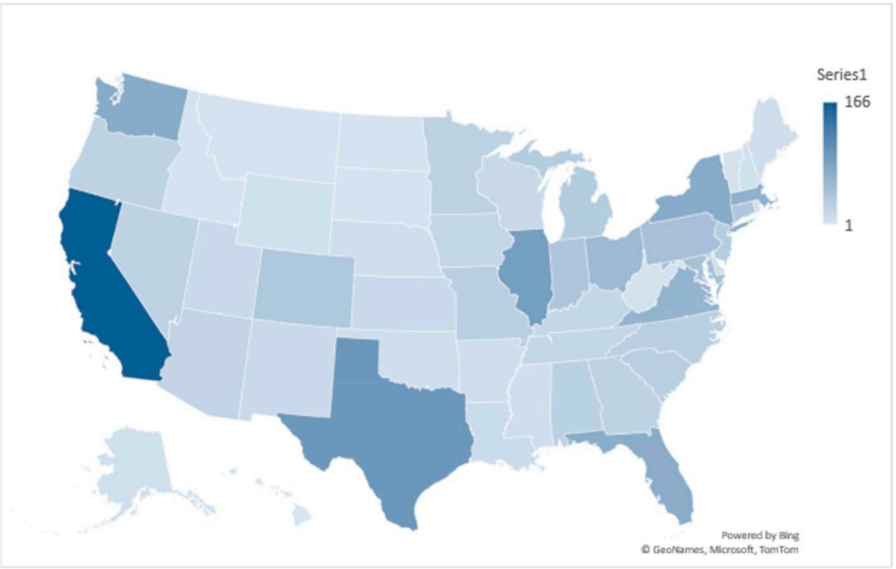

Figure 1. Geographic distribution of LIS job advertisements.

74, Washington with 74, Florida with 72, Massachusetts with 67, Virginia with 62, Ohio with 55, and Pennsylvania with 46.

Interestingly, this top ten list aligns closely with the top ten states ranked by GDP in the United States: California (1), Texas (2), Illinois (5), New York (3), Washington (11), Florida (4), Massachusetts (12), Virginia (13), and Ohio (7) (US Bureau of Economic Analysis, 2022). The number in parenthesis behind a state in this list indicates the number of the GDP ranking of the state. The correlation between a state's GDP ranking and its LIS job demands is noteworthy. To validate this claim, a Wilcoxon test was conducted using the job advertisement data from the states and the 2022 GDP by State data (US Bureau of Economic Analysis, 2022). The Wilcoxon test results support the claim, with a z-score of −1.59, p value of 0.847, and a total sample size of 50. These findings suggest a strong correlation between a state's GDP and its demand for LIS jobs. States with higher GDP rankings tend to have a greater demand for LIS professionals.

It is noteworthy that the reach of the ALA job website extends beyond the borders of the United States, as it attracted job advertisements from various countries around the world. Among these countries, there were job posts from Australia (1), Canada (22), Fiji (1), Japan (2), Qatar (2), Singapore (1), Sweden (1), the United Arab Emirates (1), and the United Kingdom (1). The majority of these international job postings originated from countries in Asia and Europe. It is particularly notable that Canada had the largest number of LIS job posts (22) among these countries.

Library type analysis

The analysis presented here focuses on the distribution of LIS job advertisements across various library types. Table 1 provides a summary of job posts categorized by library types. According to the table, Academic/Research (College/University) (992), Public Library (410), and Government (Federal/State) Library (22) ranked as the top three in

Table 1. Summary of job posts in library types.

Library type	Count
Academic/Research (College/University)	992
Public Library	410
Other	36
Government (Federal/State) Library	22
Museum	17
Library and Information Science School	14
School Library/Media Center (K-12)	13
Library Cooperative/Consortium	12
Association	9
Special Library/Corporate	7
Grand total	1532

terms of job postings. Academic/Research (College/University) and Public Library emerged as the major sources of job posts, dominating the LIS job market. In fact, the number of job posts in Academic/Research (College/University) exceeded the combined total of all other library types. An interesting observation is that Museum (17) secured the fourth position in the table, indicating that the ALA job website served as a significant channel for museum job seekers.

The results of a Chi-square test reveal significant differences among the library types concerning job posts, with a Chi-square value of 6006.33, degrees of freedom (df) equal to 9, and a p value of 0.000. This statistical test confirms that the distribution of job posts across different library types is not uniform, highlighting the varying levels of job opportunities within the LIS field across different types of libraries.

Job category analysis

A total of thirty-seven specific items were defined within the job category, showcasing the rich and diverse job pool within the LIS field. Table 2 presents all the items in the job category along with their corresponding numbers of LIS job advertisements. The results of the Chi-square test indicate significant differences among the job categories in terms of job posts, with a Chi-square value of 3187.34, degrees of freedom (df) equal to 36, and a p value of 0.00.

The top 10 LIS job categories, based on the number of job advertisements, were as follows: Administration/Management (340), Not Listed/Other (134), Special Collections/Archives (103), Subject Specialist/Liaison (86), Information Literacy and Instruction (83), Collection Development/Acquisitions (71), Cataloging/Metadata (64), Research (63), IT/Systems/Web (55), and Reference (48). These job categories reflect the prominent trends in the LIS job market. They encompass not only traditional positions such as management, collection development, information literacy and instruction, cataloging, and metadata, but also emerging areas such as data services, user experience, and IT.

On the other end of the spectrum, the five LIS job categories with the lowest numbers of job posts were Preservation/Conservation (4), GIS (4), Distance and Online Learning (3), and Government Documents (3). It is worth noting that the Distance and Online Learning category represents an emerging job position within libraries, reflecting the evolving nature of library services in response to changing educational and technological landscapes.

Table 2. Summary of job posts in LIS job category.

Job category	Count
Administration/Management	340
Not Listed/other	134
Special Collections/Archives	103
Subject Specialist/Liaison	86
Information Literacy and Instruction	83
Collection Development/Acquisitions	71
Cataloging/Metadata	64
Research	63
IT/Systems/Web	55
Reference	48
Digital Projects and Initiatives	44
Outreach and Public Programs	42
Electronic Resources	41
Access Services/Circulation	41
Adult Services	40
Youth Services	36
School Librarian/Teacher	29
Technical Services	29
Children's Services	25
Scholarly Communication/Copyright	20
Data Services	18
User Experience	15
LIS Education Faculty	14
Instructional Design and Technology	14
Law	13
Residency or Fellowship	9
Resource Sharing/ILL	9
Medical	7
Knowledge Management	6
Support Staff/Paraprofessional	6
Assessment	5
Development/Grant Writing	4
Marketing/Communications	4
Preservation/Conservation	4
GIS	4
Distance and Online Learning	3
Government Documents	3
Total	1532

The results of job entry level requirement under the job categories are illustrated in Table 3. It is apparent that most of LIS jobs did not require entry level jobs. Only 5.2% of the job posts required entry level jobs in the 23 job categories. Information Literacy and Instruction (12) and Subject Specialist/Liaison (6) had relatively high numbers for entry level jobs.

Table 4 presents the results of the cross-tabulation analysis between job category and job type, considering job types such as full-time, contract, part-time, temporary, and internship. The analysis reveals that full-time jobs (1372) significantly dominated the LIS job market. This indicates that the majority of available positions on the ALA job website were for full-time employment.

Interestingly, the number of internship posts was only 2, suggesting that the website may not be an optimal channel for LIS program graduates to find internship opportunities. It appears that most library internship jobs are not posted on the LIS job website. Consequently, individuals seeking internships in the field may need to explore alternative avenues or sources to secure relevant opportunities.

Table 3. Summary of the LIS job category *vs.* job entry level.

Job category	Entry level
Information Literacy and Instruction	12
Subject Specialist/Liaison	6
Research	5
Reference	5
Electronic Resources	5
Special Collections/Archives	5
Outreach and Public Programs	4
Adult Services	4
Youth Services	4
Residency or Fellowship	3
Assessment	3
Technical Services	3
Cataloging/Metadata	3
Administration/Management	3
Access Services/Circulation	3
Not Listed/other	2
Medical	2
Digital Projects and Initiatives	2
Scholarly Communication/Copyright	2
IT/Systems/Web	2
Instructional Design and Technology	1
Children's Services	1
Law	1
Total	81

Table 5 presents the relationships between job category and workplace type. The percentages of hybrid, onsite, and remote workplace types were 12.86%, 86.16%, and 0.98% respectively. The data shows that the majority of job postings (86.16%) were for onsite positions, indicating that physical presence at the workplace was the most common requirement for LIS jobs.

However, it is worth noting that a small percentage of job postings (12.86%) offered hybrid work arrangements. Among the job categories, Administration/Management (28), IT/Systems/Web (17), Subject Specialist/Liaison (17), Information Literacy and Instruction (13), Collection Development/Acquisitions (13), and Cataloging/Metadata (13) were the most common categories associated with hybrid jobs. This suggests that certain positions within these categories may allow for a combination of onsite and remote work. Thirteen job categories accepted the remote job type.

Table 6 illustrates the relationships between job category and job duration. The job duration has six different predefined groups: 2–4 weeks, 1–3 months, 3–6 months, 6–12 months, 1–2 years, and indefinite. It is clear that the indefinite job accounted for about 95.96% of all the jobs while the definite job accounted for about 4.04%. The data suggest that libraries leaned to hire indefinite job positions because most of library positions like cataloging, reference service, collection development, etc., require long term professional training.

Table 7 displays the relationships between job category and traveling requirement. Data in the table indicate that job positions for no travel, 0–10% travel, 10–25% travel, 25–50% travel, 50–75% travel requirements were 924, 531, 70, 5, and 2, respectively. Majority of the jobs did not require travel. The job categories that required 0–10% travel were Administration/Management (114), Information Literacy and Instruction (37), Subject Specialist/Liaison (34), Development/Acquisitions (28), Reference (26),

Table 4. Summary of the LIS job category *vs.* job type.

Job category	Internship	Temporary	Part-time	Contract	Full-time
Access Services/Circulation					36
Administration/Management				1	315
Adult Services			1		38
Assessment					5
Cataloging/Metadata			1		60
Children's Services			1		23
Collection Development/Acquisitions			2		66
Data Services					17
Development/Grant Writing			1		3
Digital Projects and Initiatives		1			37
Distance and Online Learning			1		2
Electronic Resources					40
GIS					4
Government Documents					3
Information Literacy and Instruction		2			78
Instructional Design and Technology					11
IT/Systems/Web		1	2		49
Knowledge Management	1				5
Law					13
LIS Education Faculty					11
Marketing/Communications			1		3
Medical			1		6
Not Listed/Other		1		3	98
Outreach and Public Programs					42
Preservation/Conservation					4
Reference			2	1	42
Research		1			55
Residency or Fellowship	1				7
Resource Sharing/ILL					8
Scholarly Communication/Copyright					20
School Librarian/Teacher				1	17
Special Collections/Archives		2	1	1	92
Subject Specialist/Liaison					84
Support Staff/Paraprofessional					6
Technical Services					28
User Experience			1		12
Youth Services			2		32
Total	2	8	17	7	1372

Special Collections/Archives (26), and IT/Systems/Web (25). It makes sense that the jobs like administration, liaison, IT, and acquisition require some travel.

Table 8 presents the relationships between job category and education level, while Figure 2 provides a visual representation of the numbers of job posts across different education levels.

The data reveal that out of the total job posts, 11 positions required a Doctorate degree, 1078 positions required a Master's degree, 138 positions required a Bachelor's degree or equivalent, 7 positions required an Associate's degree, and 14 positions required a High School Diploma.

The majority of LIS jobs (1078) necessitated a Master's degree, indicating its significance as the preferred educational qualification for a wide range of positions in the field. The job categories that required a doctoral degree were Administration/Management (2), Knowledge Management (1), Law (3), and LIS Education Faculty (5). These categories typically involve specialized or higher-level roles within the LIS domain.

Table 5. Summary of the LIS job category *vs.* workplace type.

Job category	Hybrid	On-site	Remote
Access Services/Circulation	5	36	
Administration/Management	28	312	
Adult Services		40	
Assessment	1	4	
Cataloging/Metadata	13	50	1
Children's Services	1	23	1
Collection Development/Acquisitions	13	57	1
Data Services	6	11	1
Development/Grant Writing		4	
Digital Projects and Initiatives	11	33	
Distance and Online Learning		2	1
Electronic Resources	2	37	2
GIS		4	
Government Documents		3	
Information Literacy and Instruction	13	70	
Instructional Design and Technology		14	
IT/Systems/Web	17	37	1
Knowledge Management	2	3	1
Law	6	7	
LIS Education Faculty	2	12	
Marketing/Communications		3	1
Medical	4	3	
Not Listed/Other	12	120	2
Outreach and Public Programs	4	38	
Preservation/Conservation		4	
Reference	9	39	
Research	7	55	1
Residency or Fellowship	3	6	
Resource Sharing/ILL	4	5	
Scholarly Communication/Copyright	6	13	1
School Librarian/Teacher		29	
Special Collections/Archives	7	96	
Subject Specialist/Liaison	17	69	
Support Staff/Paraprofessional		6	
Technical Services	1	28	
User Experience	3	11	1
Youth Services		36	
Total	197	1320	15

On the other hand, job postings that required a High School Diploma (14) primarily focused on tasks of a more straightforward nature, such as circulation desk duties, data entry, and office routines.

Table 9 displays the relationships between job category and minimum working experience requirement. Figure 3 shows the numbers of job posts in different working experience requirements. The top 3 job categories required for 0–1 year working experience were Information Literacy and Instruction (21), Subject Specialist/Liaison (18), and Reference (11). The top 3 job categories required for 1–2 years working experience were Special Collections/Archives (11), Administration/Management (10), and Reference (9). The top 3 job categories required for 2-3 year working experience were Administration/Management (25), Cataloging/Metadata (17), and Development/Acquisitions (16). The top 3 job categories required for 3-5 year working experience were Administration/Management (80), Special Collections/Archives (14), and Cataloging/Metadata (14). The top three job categories required for 5–7 years working experience were Administration/Management (83), Special Collections/Archives (12), and Development/Acquisitions (11). The top three job categories required for 7–10 years working

Table 6. Summary of the LIS job category *vs.* job duration.

Job category	2–4 Weeks	1–3 Months	3–6 Months	6–12 Months	1–2 Years	Indefinite
Access Services/Circulation		1				36
Administration/Management				1	1	268
Adult Services						35
Assessment					1	4
Cataloging/Metadata				1	2	43
Children's Services						22
Collection Development/Acquisitions					1	55
Data Services						11
Development/Grant Writing						2
Digital Projects and Initiatives					1	33
Distance and Online Learning						3
Electronic Resources					1	30
GIS						2
Government Documents						3
Information Literacy and Instruction				1	2	67
Instructional Design and Technology					1	11
IT/Systems/Web					2	43
Knowledge Management		1		1		3
Law						11
LIS Education Faculty					1	6
Marketing/Communications						2
Medical						7
Not Listed/Other			1		1	70
Outreach and Public Programs	1				1	32
Preservation/Conservation					1	3
Reference				2		36
Research			1		1	36
Residency or Fellowship				1	5	2
Resource Sharing/ILL						6
Scholarly Communication/Copyright						15
School Librarian/Teacher						16
Special Collections/Archives					7	64
Subject Specialist/Liaison					6	70
Support Staff/Paraprofessional						5
Technical Services						19
User Experience						13
Youth Services						32
Total	1	2	2	7	35	1116

experience were Administration/Management (26), Special Collections/Archives (3), and Development/Acquisitions (3). It seems that Administration/Management, Special Collections/Archives, and Cataloging/Metadata required more working experience.

Table 10 displays the relationships between job category and annual job salary. Figure 4 shows the numbers of job posts in different job salary ranges. Most of the job posts were within the following ranges ($50,000–$60,000), ($60,000–$70,000), and ($70,000–$80,000). The numbers of the job posts in the three salary ranges were 198, 220, and 158, respectively. The top three job categories whose annual job salaries were over $100,000 were Administration/Management (89), Collection Development/Acquisitions (6), and IT/Systems/Web (5). The average annual job salary of the LIS related job posts was $76,630.01, median was $ 68,110.25, minimum was $22,500, and maximum was $ 422,500. The maximum salary came from an advertisement for a senior museum administration position while the minimum salary came from a position for online learning position. According to the U.S. Bureau of Labor Statistics Report (2022), the average annual salary of library related jobs (Educational Instruction and Library Occupations, Education and Library Science Teachers, Library Technicians, Educational

Table 7. Summary of the LIS job category *vs.* travel requirement.

Job category	0–10%	10–25%	25–50%	50–75%	No
Access Services/Circulation	18				23
Administration/Management	114	30	1		195
Adult Services	18	5			17
Assessment	4				1
Cataloging/Metadata	24	3			37
Children's Services	13	1			11
Collection Development/Acquisitions	28	2			41
Data Services	3				15
Development/Grant Writing		2			2
Digital Projects and Initiatives	15				29
Distance and Online Learning		1			2
Electronic Resources	20	3			18
GIS	1				3
Government Documents	1				2
Information Literacy and Instruction	37	1			45
Instructional Design and Technology	7				7
IT/Systems/Web	25	1			29
Knowledge Management	2				4
Law	6	1			6
LIS Education Faculty	3				11
Marketing/Communications		1	1		2
Medical	3				4
Not Listed/Other	23	6	2	2	98
Outreach and Public Programs	17	5	1		19
Preservation/Conservation	2	1			1
Reference	26				22
Research	11				52
Residency or Fellowship					9
Resource Sharing/ILL	4				5
Scholarly Communication/Copyright	9				11
School Librarian/Teacher	7				22
Special Collections/Archives	26	1			76
Subject Specialist/Liaison	34	1			51
Support Staff/Paraprofessional	5				1
Technical Services	10				19
User Experience	3				12
Youth Services	12	5			19
Total	531	70	5	2	924

Instruction and Library Workers, and Library Assistants) in the United States is around $55,851. The average salary of the LIS related job posts is much higher than that of library related jobs in the States in 2022.

Table 10 presents the relationships between job category and annual job salary, while Figure 4 provides a graphical representation of the numbers of job posts within different salary ranges. The data indicates that a significant portion of the job posts fell within the salary ranges of $50,000–$60,000, $60,000–$70,000, and $70,000–$80,000. Specifically, there were 198 job posts in the $50,000–$60,000 range, 220 job posts in the $60,000–$70,000 range, and 158 job posts in the $70,000–$80,000 range. These ranges encompassed a substantial proportion of the job market, reflecting the common salary levels for LIS positions. Among the job categories, three stood out with annual job salaries surpassing $100,000. These categories were Administration/Management (89 job posts), Collection Development/Acquisitions (6 job posts), and IT/Systems/Web (5 job posts). These categories represented positions with higher salary prospects within the LIS field.

Table 8. Summary of the LIS job category *vs.* education requirement.

Job category	H.S. Diploma	Associates Degree	BA/BS/ Undergraduate	Master's Degree	Ph.D.
Access Services/Circulation	2	1	13	21	
Administration/Management	1	2	33	232	2
Adult Services	1		4	34	
Assessment			1	4	
Cataloging/Metadata			4	50	
Children's Services			2	22	
Collection Development/Acquisitions	1		6	53	
Data Services			2	12	
Development/Grant Writing			4		
Digital Projects and Initiatives	2		7	31	
Distance and Online Learning				3	
Electronic Resources	1		2	32	
GIS				2	
Government Documents				3	
Information Literacy and Instruction			2	75	
Instructional Design and Technology			4	8	
IT/Systems/Web		1	11	35	
Knowledge Management			2	1	1
Law				9	3
LIS Education Faculty				4	5
Marketing/Communications	1		1		
Medical				7	
Not Listed/Other	3		14	61	
Outreach and Public Programs			7	31	
Preservation/Conservation				4	
Reference			1	42	
Research			1	45	
Residency or Fellowship				8	
Resource Sharing/ILL			2	4	
Scholarly Communication/Copyright			1	15	
School Librarian/Teacher	1		2	14	
Special Collections/Archives			3	80	
Subject Specialist/Liaison				79	
Support Staff/Paraprofessional	1	1	3		
Technical Services		1	3	18	
User Experience		1	2	9	
Youth Services			1	30	
Total	14	7	138	1078	11

The average annual job salary for LIS-related job posts was calculated to be $76,630.01, with a median value of $68,110.25. The salary range varied significantly, with the lowest annual salary being $22,500 for an online learning position and the highest reaching $422,500 for a senior museum administration role. It is worth noting that the average salary for LIS-related job posts ($76,630.01) exceeds the average salary for library-related jobs in the United States, as reported by the US Bureau of Labor Statistics (2022), which stands at approximately $55,851. This highlights the relatively higher earning potential within the LIS job market compared to broader library-related occupations.

Discussion

A study conducted in 2012 indicated that 20% of LIS advertisements were recruiting entry-level positions (Tewell, 2012). However, our result reveals that only 5.2% of the

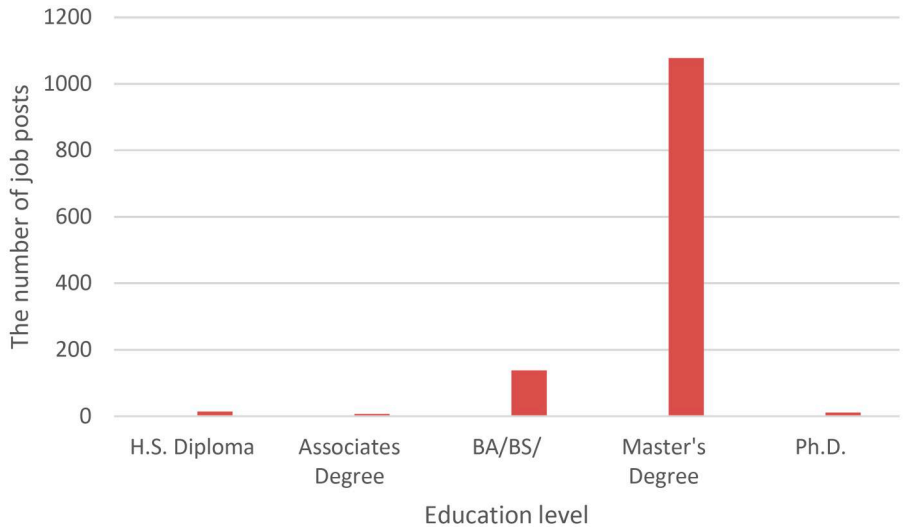

Figure 2. Summary of job posts in different education levels.

advertisements are recruiting entry-level positions, indicating a declining trend in entry-level positions within the LIS field.

In a recent study by Rahhal et al. (2022), it was found that emerging professions like data scientists experienced a doubling of job openings within one year. Similarly, our study identified the emergence of new job roles such as Data Services, User Experience, and Distance and Online Learning. Additionally, the impact of the COVID-19 pandemic on LIS jobs (Obenauf, 2021; Garner et al., 2021; Green, 2022) indicated a growing demand for remote working positions in libraries, which aligns with the conclusions of our study highlighting the trend of remote and hybrid working modes.

It is worth discussing the relationships between salary and education level. Table 11 shows the relationships between salary and education level in the job market. One hundred percent of Ph.D.-related positions were over $90,000. About 90% of high school diploma-related jobs and 80% of associate degree-related jobs were below $70,000. About 45.74% of the Master's degree-related jobs were over $70,000. Around 48.67% of the BA/BS/Undergraduate related jobs were over $70,000. The data analyses show that the higher education level of a LIS job is, the higher the job pays.

The ALA's Committee on Accreditation accredits master's degree programs in library and information studies/schools in the United States and Canada. This accreditation ensures that the programs meet certain professional standards and prepares graduates for professional careers in the library field. We found that 75.6% of the LIS jobs required that the applicants with master degrees accredited by the ALA. This requirement was emphasized in the following job categories: Assessment (80%), Cataloging/Metadata (73.44%), Collection Development/Acquisitions (66.20%), Data Services (61.11%), Digital Projects and Initiatives (52.27%), Electronic Resources (53.66%), GIS (75%), Government Documents (66.67%), Information Literacy and Instruction (71.08%), Law (92.31%), Medical (71.43%), Reference (66.67%), Research (57.14%), School Librarian/Teacher (62.07%), Special Collections/Archives (53.40%), Subject Specialist/Liaison (72.09%), and Technical Services (55.17%).

Table 9. Summary of the LIS job category *vs.* working experience requirement.

Job category	0–1	1–2	2–3	3–5	5–7	7–10	Over 10
Access Services/Circulation	3	5	12	6	2	2	
Administration/Management	8	10	25	80	83	26	6
Adult Services	10	8	5	4	2		
Assessment		1		2			
Cataloging/Metadata	4	8	17	14	4	1	
Children's Services	4	6	1	5			
Collection Development/Acquisitions	1	9	16	8	11	3	
Data Services		2			2		
Development/Grant Writing		1		2		1	
Digital Projects and Initiatives	8	6	3	5	2	2	
Distance and Online Learning			2		1		
Electronic Resources	6	5	2	12	1		
GIS	1			1			
Government Documents	1		1				
Information Literacy and Instruction	21	9	2	9	3		
Instructional Design and Technology	2	4	1	1	1		
IT/Systems/Web	5	7	4	13	5	2	
Knowledge Management				1	1	1	
Law	2	2		2			
LIS Education Faculty	1				3		
Marketing/Communications		1	1			1	
Medical		1	1	1	1		
Not Listed/Other	10	4	10	15	7	5	2
Outreach and Public Programs	7	6	8	1	3		
Preservation/Conservation	2	1			1		
Reference	11	9	5	2	2		
Research	4	4	5	7	2	2	
Residency or Fellowship	1	1					
Resource Sharing/ILL		1	1	1	1		
Scholarly Communication/Copyright		4	4	1			1
School Librarian/Teacher	1	2	6	4			
Special Collections/Archives	6	11	15	14	12	3	1
Subject Specialist/Liaison	18	8	8	4	2	1	
Support Staff/Paraprofessional	1	3	1		1		
Technical Services	2	4	3	4	4		
User Experience		1	5	2	1		
Youth Services	8	7	2	5			
Total	148	151	166	226	158	50	10

The COVID-19 pandemic has had a significant impact on remote work mode, accelerating its adoption and transforming the way people work. It is important to note that the impact of remote work can vary across industries, job roles, and individual circumstances. The findings of this study show that the LIS job positions with both hybrid and remote work modes accounted for 13.84%. Majority of the job categories (73.68%) required the job positions with hybrid work mode or remote work mode. The extent of remote and hybrid work adoption and its long-term effects will continue to evolve as the world navigates the pandemic and beyond. The pandemic also prompted educational institutions to swiftly transition to online learning models. As a result, libraries have adapted to the online learning models to support students at different levels, leading to an emerging job position distance and online learning.

The implications of this study have multifold. The findings of this research study help researchers in LIS understand the potential research studies from the job demand perspective like increasing remote and hybrid work modes in libraries, demanding in key job categories (Administration/Management, Special Collections/Archives, Subject

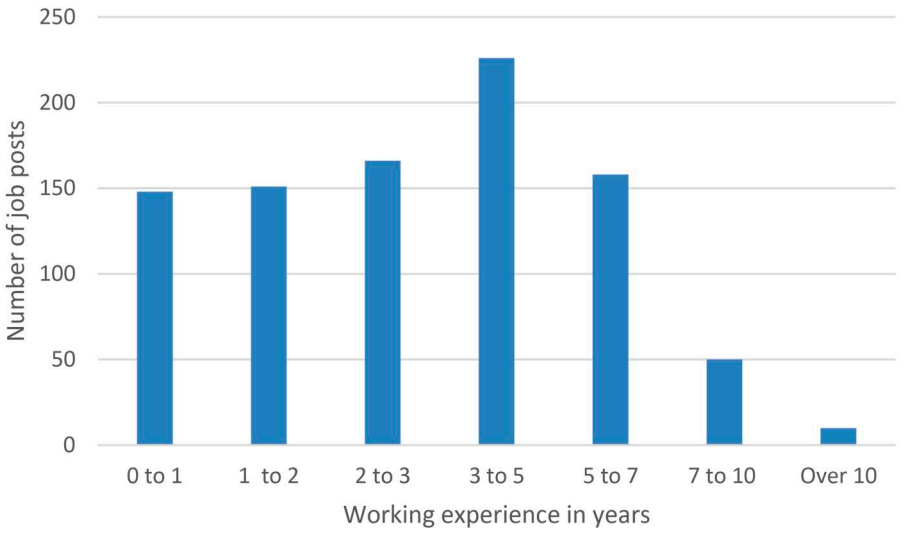

Figure 3. Summary of job posts in different working experience requirements.

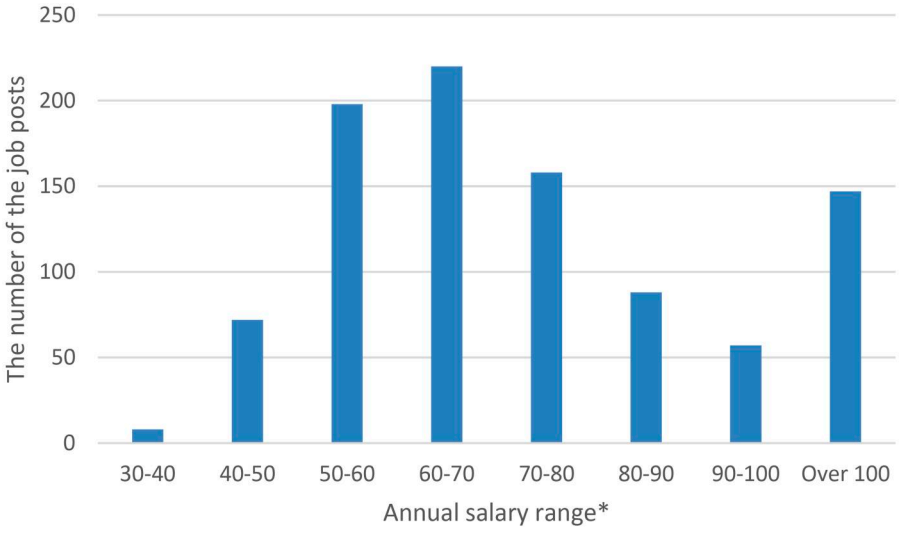

Figure 4. Summary of job posts in different annual job salary ranges.

Specialist/Liaison, Information Literacy and Instruction, Collection Development/Acquisitions, Information Literacy and Instruction, Collection Development/Acquisitions, Cataloging/Metadata, Research, IT/Systems/Web, and others), the impact of education levels on LIS jobs, and so on. The findings assist educators in the LIS field in identifying the new areas like distance and online learning, IT/systems/Web, user experience, data services, and so on to strengthen their existing curricular systems to prepare and train students to best fit the job market after graduation. The findings also aid LIS job seekers by providing a guidance to find hot job categories, and library types, and geographic locations. Finally, in recognizing the importance of the ALA Accreditation, it is strongly recommended that the ALA job website

Table 10. Summary of the relationships between job category and annual job salary.

Job category	30–40*	40–50*	50–60*	60–70*	70–80*	80–90*	90–100*	Over 100*
Access Services/Circulation	2	4	8	8	5			
Administration/Management		4	12	31	46	24	30	89
Adult Services		9	4	11	5	5	2	1
Assessment			1	1	1	1		
Cataloging/Metadata	1	2	12	12	5	3	1	2
Children's Services		8	5	1	3	6		
Collection Development/Acquisitions		7	10	6	7	6	2	6
Data Services			2	1	1	1	3	
Development/Grant Writing	1				1			1
Digital Projects and Initiatives		3	7	9	1	2	3	1
Distance and Online Learning	1				1			
Electronic Resources		2	7	6	2	3		4
GIS			2					
Government Documents			1				1	
Information Literacy and Instruction		1	20	16	9	3		2
Instructional Design and Technology		1	2	2	3			
IT/Systems/Web	1		3	11	7	5	4	5
Knowledge Management					1			2
Law				3			1	
LIS Education Faculty				1		1	1	1
Marketing/Communications				2				
Medical		1		1	1			2
Not Listed/Other		4	19	13	13	4	1	13
Outreach and Public Programs		5	7	6	5	1	1	2
Preservation/Conservation			2			2		
Reference		6	9	8	3		2	
Research		1	4	10	2	3		3
Residency or Fellowship			3	2				
Resource Sharing/ILL		1	2					2
Scholarly Communication/Copyright		1	1	4	1			1
School Librarian/Teacher			4	1	1	2	1	1
Special Collections/Archives		5	21	21	10	8	2	2
Subject Specialist/Liaison			16	14	10	7		4
Support Staff/Paraprofessional		1	1	2	1			
Technical Services		1	5	5	2	1		1
User Experience	1		2	2	5			1
Youth Services	1	5	6	10	6		2	1
Total	7	72	198	220	158	88	57	147

*A unit is equal to $1000.

Table 11. Summary of the relationships between salary *vs.* education level.

Education level	30–40*	40–50*	50–60*	60–70*	70–80*	80–90*	90–10*	100* over
H.S. Diploma		3	2	4				1
Associates Degree	1	2		1			1	
BA/BS/Undergraduate	2	16	19	21	17	7	14	17
Master's Degree	4	50	165	176	123	72	39	99
Ph.D.							2	1
Total	7	72	198	220	158	88	57	147

*A unit is equal to $1000.

incorporate the ALA Accreditation as one of its standard job requirement options to facilitate both LIS job advertisers and job seekers. Observed that the number of job posts in Not Listed/Other within the job category (134) was high and it was listed in the second place in all the job categories. It implies that many job advertisements could not find proper job categories in the predefined job category list. More new job categories should be added to the job category list to reflect newly emerging jobs in the job market.

Conclusion

The advent of IT and digitalization has significantly impacted the role of librarians in today's society. The investigation of demands and requirements of librarians in library job market presents a large and cohesive picture about the job demand and job requirements of modern librarians. Library administrators, librarians, researchers and educators in LIS would benefit from the findings of this study.

Major findings of the study are summarized as follows:

The states with the highest number of LIS job openings were California, Texas, Illinois, New York, and Washington. There was a close correlation between the number of job advertisements and the economic development levels of these states. Among different types of libraries, Academic/Research (College/University) libraries had the highest number of job openings, followed by Public libraries and Government (Federal/State) libraries, respectively. The most sought-after LIS job categories in the market were Administration/Management, Special Collections/Archives, Subject Specialist/Liaison, Information Literacy and Instruction, and Collection Development/Acquisitions. Additionally, new job categories such as Data Services, User Experience, and Distance and Online Learning emerged. Remote and hybrid working arrangements have become a prevalent trend in the LIS field, allowing library professionals to work from home or combine remote and on-site work. A significant majority of library-related jobs required a Master's degree, particularly from programs accredited by the ALA. This highlights the importance of obtaining an ALA-accredited degree for pursuing a career in the LIS field. Most LIS job postings preferred applicants with 3-5 years of working experience, indicating the value placed on practical experience in addition to educational qualifications. The average salary for LIS-related job posts was $76,630.01, with a median of $68,110.25. The salary range varied significantly, with the minimum reported salary at $22,500 and the maximum at $422,500.

These findings provide insights into the distribution of LIS job opportunities, preferred qualifications, and emerging trends in the field. They serve as valuable information for individuals seeking employment in the LIS sector and institutions looking to understand the job market dynamics for LIS professionals.

Limitations of the study include, but are not limited to, the scope of the study primarily focuses only on the north American library job market, and the data collection period is relatively short.

Future research directions, comparison between American library job market and other area library job market like European Union countries, or Asian countries, or South American countries. A longitude study of library job markets may reveal the change in the library job market over time.

Disclosure statement

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