

Advances in Library, Information and Archival Science During the 13th Five-Year Plan Period: An Analysis of Research Hotspots and Trends in Domestic and International Journal Articles (Postprint)

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Abstract

[Purpose/Significance] Library science, information science, and archival science (hereinafter referred to as “LIS&A”) constitute important disciplines for cultivating new-type information and knowledge professionals in contemporary society. This study reveals the research hotspots and trends of domestic and international journal articles in the LIS&A discipline during the 13th Five-Year Plan period, aiming to provide some insights for future research in China’s LIS&A discipline, promote its development, and enhance academic discourse power. [Method/Process] With the domestic CNKI database and international Web of Science database selected as data sources, and core journal articles in LIS&A from 2016-2020 as the research sample, this study utilizes visualization software such as Citespace, VOSviewer, and Gephi to reveal research hotspots and development trends in Chinese and foreign language journals from the perspectives of publication volume and citation counts, keyword co-occurrence, and temporal distribution. [Results/Conclusion] The study reveals that during the 13th Five-Year Plan period, the publication volume of Chinese journal articles exhibited a slight year-on-year decreasing trend, while that of international journal articles showed an upward trend, indicating a gradual internationalization of research in the discipline. Research hotspots in Chinese and international journal articles demonstrate characteristics including diversified research themes, progressive deepening of “library”-related topic research, and article topics closely following the discipline’s research hotspots and trends, albeit with different emphases. Overall, the research exhibits trends of adherence to and deepening of traditional research areas, integrated development through interdisciplinary cross-fertilization, and expansion into public social domains.

Full Text

Progress of Library, Information, and Archival Science During the 13th Five-Year Plan: Analysis of Research Hotspots and Trends in Chinese and Foreign Journal Papers

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Abstract: [Purpose/Significance] Library science, information science, and archival science (collectively referred to as “Library, Information, and Archival Science”) are important disciplines for cultivating new types of information and knowledge professionals in contemporary society. This paper reveals the research hotspots and trends in Chinese and foreign journal papers in these disciplines during the 13th Five-Year Plan period (2016-2020), aiming to provide insights for future research in China and promote the development of these disciplines while enhancing academic discourse power. [Method/Process] Using CNKI for domestic sources and Web of Science for international sources, this study analyzed core journal papers from 2016-2020. Visualization software including CiteSpace, VOSviewer, and Gephi was employed to examine publication volume, citation counts, keyword co-occurrence, and temporal distributions to identify research hotspots and development trends. [Result/Conclusion] The study found that during the 13th Five-Year Plan period, Chinese journal publications showed a slight year-by-year decline, while foreign journal publications demonstrated an upward trend, indicating increasing internationalization of research in these fields. Research hotspots in both Chinese and foreign journals exhibited diversified themes, progressively deepening “library”-related research, and close alignment with disciplinary trends, though with different emphases. Overall trends include: adherence to and deepening of traditional research areas, interdisciplinary integration and development, and expansion into public social domains.

Keywords: 13th Five-Year Plan; Library, Information, and Archival Science; Disciplinary Progress; Journal Papers; Research Hotspots; Research Trends

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2 Data Sources and Methods

This study selected CSSCI-indexed journals (2019-2020) in the library, information, and archival science fields as the Chinese sample, totaling 20 journals. Chinese journal data were sourced from CNKI, excluding non-academic articles (2020 data remains incomplete), yielding 16,911 records from 2016-2020. Foreign literature was obtained from the Web of Science database published by the Institute for Scientific Information, under the category “Information Science & Library Science,” limited to China as the country/region and “Article” as the document type, with citation indexes including SSCI and SCI-EXPANDED, resulting in 2,270 records from 2016-2020. All data were retrieved on April 20, 2020.

Keyword co-occurrence frequencies were statistically analyzed to understand relationships between keywords and identify clustering patterns for thematic analysis. The 16,911 Chinese journal papers from the 13th Five-Year Plan period were formatted and imported into Gephi visualization software. Due to the large dataset, only nodes with non-zero centrality were displayed to generate a keyword co-occurrence map for the field [Figure 2: see original paper]. Visualization software including CiteSpace and VOSviewer was employed for different data processing needs, with real-time algorithms for layout adjustment and customization of nodes, edges, labels, and colors. Multiple dimensional perspectives such as keyword frequency, burst detection, cluster analysis, and comparative review were used to analyze research hotspot evolution and development trends in Chinese and foreign journal papers.

4 Analysis of Research Hotspots in Chinese and Foreign Journal Papers

To analyze and predict development trends in library, information, and archival science and provide references for identifying key research areas during the 14th Five-Year Plan, this paper investigates and analyzes the thematic distribution of journal papers in these disciplines.

4.1 Research Hotspots in Chinese Journal Papers

Keywords represent the core and essence of a paper, with high-frequency keywords typically reflecting research themes. To clearly analyze thematic distribution and research trends in Chinese journal papers, this study identified high-frequency keywords. The keyword co-occurrence map reveals that during the 13th Five-Year Plan period, papers in sample journals focused on several main areas:

First, library resource construction and services received significant attention. “Library” ranked as the top high-frequency term, accompanied by related keywords such as library and information science theory, reader and user services,

library work and services, public libraries, university libraries, mobile libraries, digital libraries and digital resources, smart libraries, library consortia, and librarians, indicating that library resource construction and services constituted an important research theme in Chinese journal papers during this five-year period.

Second, theoretical research remained a key focus. Keywords including information resource construction, information resource management, information organization and knowledge organization, knowledge management and knowledge services, scientific evaluation, information retrieval, information services, information sharing, information disclosure and security, and information literacy education revealed that basic theoretical research in information science accounted for a substantial proportion. Theoretical research forms the foundation of disciplinary development, making it a perennial priority in library and information science regardless of developmental stage.

Third, methodological and applied research closely aligned with technological development. Keywords such as artificial intelligence and machine learning, data mining and knowledge mining, database construction, image retrieval and context awareness, and blockchain demonstrated increasing integration between information technology and library science. Technological advancement, particularly artificial intelligence, has created new opportunities for these disciplines by enhancing the speed and efficiency of data collection, preservation, processing, and analysis. Promoting the application of computer technologies like AI can foster innovation and intelligent upgrading in the field.

Fourth, network information resources emerged as a prominent research area. With the popularization of mobile internet, network information resources have become important objects of study. Keywords such as electronic resources and e-government, social media, online public opinion, digitization, networking, and informatization indicate that e-government and social media represent key areas in network information resource research.

Fifth, bibliometric and scientific evaluation research continued to develop. Keywords including competitive intelligence, bibliometrics and scientometrics, scientific evaluation and journal evaluation, citation analysis, and co-word analysis reflect ongoing attention to bibliometric and evaluation research, which has consistently been an important theme in library, information, and archival science. As these disciplines evolve, metrological research advances accordingly, encompassing bibliometrics, scientometrics, informetrics, webometrics, and knowledge metrics (collectively “five metrics”) along with altmetrics. The application of metrology as a quantitative research method in competitive intelligence, scientific evaluation, and other fields has also become a research hotspot.

4.2 Research Hotspots in Foreign Journal Papers

Keyword extraction and statistical analysis were performed on 2,270 SSCI and SCI-indexed foreign journal papers, yielding 7,280 keywords. Keywords appear-

ing more than five times were selected for analysis, comprising 223 terms that primarily formed clusters represented by “Social media,” “China,” “Model,” “Information,” and “Performance.” Since the literature selection was limited to China as the country/region with most first authors being Chinese scholars, “China” appeared as a cluster representative in the foreign keyword co-occurrence map [Figure 3: see original paper].

The thematic distribution of foreign journal papers during the 13th Five-Year Plan period exhibited several characteristics. First, social media attracted sustained attention. With Web 2.0 development and rapid expansion of mobile internet usage, platforms like Facebook, Twitter, and microblogs have proliferated, becoming primary channels for information dissemination and communication fundamentally different from mass communication. Academic exchange has increasingly utilized social media, with rich information diffusion and interactive mechanisms prompting library and information science to expand into new domains with interdisciplinary connections to computer science, management, mathematics, and other fields.

Second, “library”-related research progressively deepened. While “library” topped the high-frequency terms in Chinese journals, foreign journal papers similarly centered on library-related themes, focusing on user-oriented smart services to enhance impact. Research on knowledge-sharing-based library services, guarantee systems, related system construction, future development, and innovation has remained fundamental in recent years.

Third, research themes closely followed disciplinary hotspots and trends but with different emphases. Chinese journal papers focused more on cutting-edge theories (such as big data, digital libraries, online public opinion, digital humanities) and core values of library and information organizations (such as user services and information sharing). Foreign journal papers emphasized technical and methodological applications, with more humanized research and intelligent technical approaches. Clusters represented by machine learning indicate that international journal research themes maintain close connections with contemporary technological development.

Fourth, library-related research consistently formed the core. Keywords such as “Academic libraries,” “Digital libraries,” and “Mobile library” appeared repeatedly, with content emphasizing user-oriented smart services to strengthen impact. Knowledge-sharing-based library services, guarantee systems, system construction, and future development have remained essential research topics.

4.3 Comparative Analysis of Research Hotspots

Comparative analysis of Chinese and foreign journal papers during the 13th Five-Year Plan period reveals both similarities and differences. First, era development has promoted thematic diversification. Chinese journals demonstrate rich research content with distinct contemporary characteristics and diversified themes, showing vitality in this disciplinary cluster. Foreign journals, under

Web 2.0 and mobile internet expansion, have prompted library and information science to involve new domains with interdisciplinary connections.

Second, “library” -related research has progressively deepened in both Chinese and foreign journals. In Chinese papers, “library” ranked as the top high-frequency term, while foreign papers similarly centered on library themes with user-oriented smart services. Knowledge-sharing-based library services, systems, and innovation have remained fundamental topics.

Third, research themes closely follow disciplinary hotspots but with different emphases. Chinese papers focus more on frontier theories and core organizational values, while foreign papers emphasize technical applications, humanized research, and intelligent technologies. Machine learning clusters indicate that international research themes maintain close ties with contemporary development.

5 Analysis of Research Trends

5.1 Research Trends in Chinese Journal Papers

Examining disciplinary frontiers enables timely grasp of latest research dynamics and prediction of future directions. CiteSpace’ s burst detection algorithm can identify emerging terms through temporal distribution analysis. Using keywords as nodes and adjusting parameters, timeline and timezone visualizations were generated [Figure 4: see original paper], where each node represents a hotspot keyword and node size indicates frequency.

Based on this analysis, future trends in library, information, and archival science may concentrate in several areas. First, basic theoretical research and practical innovation will continue receiving scholarly attention, as reflected in high-frequency terms such as libraries, university libraries, public libraries, reading promotion, big data, library science, linked data, information literacy, digital libraries, social media, and disciplinary services. As information technology evolves, research themes advance accordingly, shifting from traditional information services to smart and knowledge services, with knowledge organization and management research extending through semantic analysis, annotation, identification, and system construction.

Second, “digital-intelligence empowerment” has injected vitality into these disciplines. New-generation technologies including big data, artificial intelligence, cloud computing, IoT, mobile internet, and blockchain mark the arrival of the “digital-intelligence” era. Analysis of National Social Science Fund projects reveals data as a common thread throughout. Hotspot themes emerging during the 13th Five-Year Plan include open data, data governance, data publishing, data sharing, data mining, data literacy education, data management, data quality, smart libraries, AI and machine learning, and intelligent services. In

the big data era, data provides new growth points and capabilities for these disciplines.

Third, user/reader-centered information resource construction will be strengthened. The fundamental value of information resource construction lies in serving users. Research increasingly connects with social development, integrates deeply with emerging technologies, and better satisfies user needs. Consequently, hot topics such as user profiling, user experience, smart services, user needs, information-seeking behavior, sentiment analysis, privacy protection, and information security have attracted widespread attention. The user-centered value orientation will be further deepened.

Fourth, digital research represents an inevitable trend. Hotspot themes include digital reading, digital publishing, digital humanities, digital archival resources, document digitization, urban-rural digital divide, digital resource aggregation, digital cultural resources, and digital literature resources. With technological development, internet popularization, and digital library growth, literature resource construction practices have transformed significantly toward digital resources, which offer unparalleled advantages in timeliness and accessibility compared to print resources.

Fifth, these disciplines urgently need to reconstruct their systems and capabilities. The big data era, technological development, and increasingly personalized user needs have broadened research objects and content, enriched methods and techniques, and expanded research domains, creating new disciplinary growth points. While information technology provides more powerful analytical capabilities, it also poses challenges, requiring these disciplines to absorb data mining, analysis, and AI technologies to maintain core competitiveness.

Sixth, information resource construction will further strengthen cooperative sharing. Hotspot themes include academic communities, IFLA, iSchool, library consortia, and academic social platforms. Research trends indicate integrated development across disciplines and studies of library consortium academic communities. Building a societal information resource guarantee system is inevitable, and as theoretical pioneers, these disciplines must adapt to this trend. Research on platforms and systems for resource sharing will only increase.

5.2 Research Trends in Foreign Journal Papers

To further explore research frontiers, CiteSpace's Burst Detection was applied to foreign journal keywords [Figure 5: see original paper] and [Figure 6: see original paper]. Since 2016, nine emergent themes have appeared with varying attention. "Citation analysis" had the longest duration, while "community" showed the strongest burst intensity. Among these, "library" and "classification" continue to the present, representing frontier topics in foreign journal research.

Virtual community research represents one key area. Virtual communities are online social networks where people with common interests, goals, or experi-

ences gather to share information and knowledge. Especially in the Web 2.0 era, virtual communities have attracted widespread academic attention from sociological, psychological, organizational, and information systems perspectives. Community value lies in users' sustained participation in knowledge acquisition and contribution, with current research focusing on how these activities affect outcomes and satisfaction, and how to provide more valuable knowledge and pleasant experiences.

Social media research constitutes another important direction. As information access diversifies and internet technology permeates all social domains, library and information science research under the internet context includes improved library services, public information literacy cultivation during "information epidemics," and digital libraries led by internet technologies. Since 2016, related publications have increased annually, a trend expected to continue.

Citation analysis research in foreign journals primarily includes three types: citation quantity analysis, citation network relationships, and topic relevance reflected by citations, covering aspects such as publication years, citation volumes, countries, and concentration/dispersion patterns. With maturing techniques and expanding applications, citation analysis will remain a focus. Research has measured disciplinary impact and importance, explored literature aging patterns, and will continue as a universal concern due to its minimal prerequisites.

User acceptance research mainly addresses mobile library services, examining how perceived usefulness and ease of use positively influence usage behavior. Perceived usefulness refers to the degree mobile libraries improve learning efficiency, while perceived ease of use reflects usage difficulty. Current research lacks deeper analysis of influencing factors, relationships among them, and comparative studies across different disciplines and professional groups.

Library research shows continued attention to basic theory and practical innovation, user-centered information resource construction, and disciplinary system reconstruction. Foreign journal hotspots include library research, citation analysis, and indicator systems, all traditional areas that demonstrate new thinking in response to technologies and changing environments.

Indicator system research includes constructing evaluation systems for library service quality, academic paper innovation, network information resources, and print-digital resource coordination. Future research must address the subjectivity in weight determination to achieve quantitative-qualitative integration for more scientific and reasonable systems.

Classification research has gained attention in connection with big data security, privacy, and risk control. To address privacy protection in big data platforms, scholars have proposed technologies such as anonymous data publishing, data traceability, role mining, risk-adaptive access control, data desensitization, and behavior tracking.

5.3 Comparative Analysis of Research Trends

Analysis of Chinese and foreign journal papers during the 13th Five-Year Plan period reveals three overarching trends: adherence to and deepening of traditional research areas, interdisciplinary integration and development, and expansion into public social domains.

First, traditional research areas are being upheld and deepened. Chinese journal papers show continued attention to basic theoretical research and practical innovation, user-centered information resource construction, and disciplinary system reconstruction. Foreign journal papers focus on library research, citation analysis, and indicator systems, demonstrating new thinking in traditional themes.

Second, interdisciplinary integration is deepening, particularly with data science and computer technology. As a humanities and social science field emphasizing both theory and application, these disciplines require enhanced data processing and computational capabilities to handle massive network information resources in the digital age. The need for stronger analytical and interpretive capabilities to uncover data value necessitates multidisciplinary backgrounds, fostering integration with sociology, psychology, history, and philosophy.

Third, expansion into public social domains is evident in two aspects: data sourced from society and serving society. Research on social media, virtual communities, and the internet demonstrates that data sources have become more heterogeneous, encompassing not only massive social media data but also various structured and unstructured data from government, healthcare, and policy domains. These resources, through processing and analysis, apply to various social fields such as e-government and medical information services.

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