Progress in Library, Information and Archival Science During the 13th Five-Year Plan: An Analysis of National Social Science Fund Project Postprints

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Date: 2023-04-01T16:02:47+00:00

Abstract

[Purpose/Significance] National fund-sponsored projects constitute the main body of funded projects across various disciplines of humanities and social sciences in China. An analysis of fund projects in Library, Information, and Documentation Science (including Archival Science) during the 13th Five-Year Plan period contributes to understanding the development of this discipline over the past five years. [Method/Process] This study takes social science fund projects as its research object and conducts a visual analysis of fund project-related content from multiple dimensions, including project approval quantity, geographical distribution of approvals, number of excellent completions, number of awards, and distribution of research topics. [Results/Conclusion] During the 13th Five-Year Plan period, both the number of fund projects and the quality of project completions have steadily improved, with the number of awards received by projects increasing compared to the 11th and 12th Five-Year Plan periods. Research hotspots in Library, Information, and Archival Science fund projects primarily reflect the integration of traditional research fields with information technology, encompassing studies on digital libraries, smart services, digital construction, social media and internet information technology, digital humanities research in archival science, and the organization and utilization of ancient documents. The research trends of fund projects are manifested in the close integration of Library, Information, and Archival Science with digitalization and intelligence within the context of big data. Furthermore, against the background of knowledge convergence, research on healthcare and medical information demonstrates the interdisciplinary integration between Library, Information, and Archival Science and the medical field.

Full Text

Preamble

Progress of Library, Information, and Archival Science During the 13th Five-Year Plan: Analysis of National Social Science Fund Projects

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Abstract:
[Objective/Significance] National fund programs constitute the main body of funded projects across humanities and social science disciplines in China. Analyzing fund projects in library, information, and archival science (including archival studies) during the 13th Five-Year Plan period helps grasp the development of this discipline over the past five years. [Method/Process] This study examines National Social Science Fund projects, conducting visual analysis of project establishment numbers, geographic distribution, outstanding completions, awards, and research theme distribution. [Result/Conclusion] During the 13th Five-Year Plan period, both the quantity and completion quality of funded projects improved steadily, with more awards than during the 11th and 12th Five-Year Plan periods. Research hotspots in library, information, and archival science primarily reflect the integration of traditional research fields with information technology, including digital libraries, intelligent services, digital construction, social media and internet information technology, digital humanities research in archival science, and the organization and utilization of ancient documents. Research trends demonstrate the close integration of the discipline with digitalization and intelligence against the backdrop of big data; under knowledge fusion, research on healthcare and medical information reflects interdisciplinary integration between library/information science and medicine.

Keywords: 13th Five-Year Plan; library, information, and archival science; discipline progress; funded projects; visual analysis
Classification Number: G250
DOI: 10.13266/j.issn.0252-3116.2021.05.001

The "Five-Year Plan" is the national economic and social development outline of the People's Republic of China, representing an important component of China's long-term national economic planning. It primarily plans major national construction projects, productivity distribution, and important proportional relationships in the national economy, setting goals and directions for national economic development. China is currently in the final year of its 13th Five-Year Plan. During this period, research in library, information, and archival

science has advanced steadily along the lines of disciplinary planning. The National Social Science Fund (hereinafter referred to as "Social Science Fund") and the National Natural Science Fund have increased funding for various projects. Against this backdrop, library, information, and archival science (including archival studies) has shown further prosperity and development, producing a batch of important achievements, including high-quality scientific papers, monographs, and highly-cited works supported by fund projects. The National Social Science Fund represents the highest-level research fund in humanities and social sciences in China, with strong authority and representativeness. Studying the discipline's national fund projects helps understand recent research hotspots and directions [1-4].

This study analyzes fund projects during the 13th Five-Year Plan period, conducting visual analysis of establishment numbers, geographic distribution, outstanding completions, awards, and research theme distribution over time to parse the development and changes in library, information, and archival science over the past five years, providing references for future disciplinary development.

2. Analysis of Funded Projects in Library, Information, and Archival Science (Including Archival Studies)

From 2016 to 2020, the National Social Science Fund supported 891 research projects in "library, information, and archival science," including 36 major projects, 47 key projects, 494 general projects, 200 youth projects, 56 western region projects, and 58 post-funding projects .

shows that the total number of projects during the 13th Five-Year Plan increased by approximately 44.7% compared to the 12th Five-Year Plan (631 projects), and by approximately 194% compared to the 11th Five-Year Plan (303 projects). Comprehensive analysis reveals the following characteristics of National Social Science Fund support during this period:

First, the discipline showed an increasing trend in major special projects, moving from "none to some," indicating active participation in national major scientific research plans and gradually gaining a foothold in critical areas related to national welfare, livelihood, and security.

Second, funding for major projects and post-funding projects increased significantly year by year. In 2019, major projects (12) tripled compared to 2016 (4), while post-funding projects in 2020 (23) increased nearly fivefold compared to 2016 (4). This demonstrates that library, information, and archival science (including archival studies) plays an increasingly important role in China's political, economic, cultural, and social development.

Third, general and youth projects account for nearly all funded projects, similar to previous Five-Year Plan periods. General projects alone represent over half of all disciplinary projects, increasing at an annual rate of 3% throughout the 13th Five-Year Plan. Youth projects constitute nearly one-quarter of the to-

tal, with approximately 40 projects annually, indicating stable growth and that young scholars are steadily maturing to shoulder the discipline's developmental mission.

Fourth, key projects and western region projects remained relatively stable. Key projects maintained approximately 9 projects annually, a 29% increase from the 12th Five-Year Plan (7 projects). Western region projects remained at approximately 12 projects annually, essentially flat compared to the 12th Five-Year Plan (13 projects). Key projects are crucial for developing production and improving people's livelihoods, playing a key role in overall national economic development. Their steady increase demonstrates the discipline's growing importance to national economic and social development.

3. Geographic Distribution of National Social Science Fund Projects in Library, Information, and Archival Science (Including Archival Studies)

During the 13th Five-Year Plan period, library, information, and archival science (including archival studies) received 891 National Social Science Fund projects. Excluding those obtained by military units and central government agencies, China's 31 provinces received 852 funded projects. To present the distribution of projects obtained by each province from 2016 to 2020, the 31 provinces receiving fund projects are ranked in descending order by quantity .

shows the top 10 provinces/municipalities are economically developed regions (Beijing, Shanghai, Guangzhou, Zhejiang) and educationally developed provinces (Jiangsu, Hunan, Hubei). Western provinces like Qinghai, Yunnan, and Tibet received more projects than some central provinces like Inner Mongolia, Ningxia, and Shanxi, reflecting policy support for western region projects. Beijing, Jiangsu, Hubei, Hunan, and Shanghai rank among the top five, demonstrating strong disciplinary strength and significant national support in these regions. Central provinces like Inner Mongolia, Ningxia, Shanxi, and Guizhou received few projects, indicating relatively weak disciplinary strength in these areas.

4. Analysis of Important Achievements from Funded Projects in Library, Information, and Archival Science (Including Archival Studies)

Important achievements are reflected in three aspects: (1) outstanding project completions, (2) award-winning projects from the Outstanding Achievements Awards in Humanities and Social Sciences of Higher Education Institutions, and (3) highly-cited papers.

4.1 Analysis of Outstanding Project Completions

As of December 31, 2020, 27 Social Science Fund projects received outstanding completion ratings during the 13th Five-Year Plan period, including 14 key projects, 4 youth projects, 7 general projects, and 2 western region projects .

Comparing outstanding completions across the 11th, 12th, and 13th Five-Year Plan periods and [Figure 1: see original paper] shows that key projects with outstanding completions increased substantially during the 13th Five-Year Plan compared to previous periods. Youth projects with outstanding completions also improved steadily. Western region projects achieved a breakthrough from zero during the 12th Five-Year Plan, though numbers slightly decreased during the 13th Five-Year Plan. General projects showed greater fluctuation, increasing from the 11th to 12th Five-Year Plan but decreasing significantly during the 13th Five-Year Plan, even falling below 11th Five-Year Plan levels.

Notably, library, information, and archival science (including archival studies) made significant progress during the 13th Five-Year Plan, with the total number of outstanding Social Science Fund completions increasing overall compared to the 11th Five-Year Plan.

4.2 Outstanding Achievements Awards in Humanities and Social Sciences of Higher Education Institutions

This award, selected every three years, is the most influential honor in China's humanities and social sciences. By September 2020, eight rounds had been completed. Outstanding achievements during the 13th Five-Year Plan period are shown in .

Two achievements received first prize in the eighth round: (1) Professor Feng Huiling from Renmin University of China led the National Natural Science Fund key project (approval number: 71133006), producing the monograph *Development and Policy of China's Information Resources Industry* [10], which systematically examines industrial development and policy issues. (2) Professor Jin Bo from Shanghai University led the National Social Science Fund key project "Research on Digital Archives Ecosystem Cultivation and Management" (project number: 13ATQ007), producing the monograph *Research on Digital Archives Ecosystem* [11].

Twelve achievements received second prize, including: - *Chinese Knowledge Organization Systems: Semantic Description, Co-construction and Sharing Services* by Zeng Xinhong, Shenzhen University Library, introducing semantic web technologies for ontology upgrading and network-based co-construction and sharing. - *Knowledge Science Research* by Ke Ping, Nankai University, a decade-long work exploring knowledge from new perspectives based on library and information science. - *Public Crisis Information Management* edited by Sha Yongzhong, Lanzhou University, China's first academic monograph on public crisis information management. - *Knowledge Organization Theory and Meth-*

ods for Knowledge Services by Su Xinning, Nanjing University, constructing a knowledge organization system for knowledge services. - *Theory and Practice of Scientific and Technical Report Quality Management* by Sun Jianjun, Nanjing University, systematically exploring quality management in scientific report systems. - *Twenty-Five Histories: Art and Literature Classics Compilation* edited by Wang Chenglue, Shandong University, a national ancient books publishing project. - *General History of Reading in China* edited by Wang Yuguang, Peking University, the first multi-volume work on Chinese reading history. - *History of Chinese Editorial Thought* edited by Wu Ping, Wuhan University, systematically presenting the evolution of Chinese editorial thought.

Analysis of awards from the sixth (11th Five-Year Plan), seventh (12th Five-Year Plan), and eighth (13th Five-Year Plan) rounds and [Figure 2: see original paper] shows first prizes increased from 1 to 2, second prizes from 5 to 12, and third prizes fluctuated, with an overall upward trend for first and second prizes.

5. Research Hotspots and Trends in Library, Information, and Archival Science (Including Archival Studies)

To analyze development trends and provide references for determining key research areas during the 14th Five-Year Plan, this study examined 856 National Social Science Fund project titles from 2016-2020. Using CO-Occurrence 6.7 (COOC6.7) software, titles were segmented, selecting keywords appearing more than 30 times to generate co-occurrence matrices. After removing invalid keywords like “research,” “model,” and “analysis,” 1,546 keywords were obtained and categorized into 16 themes.

5.1 Theme Distribution of National Social Science Fund Projects

From 2016-2020, the National Social Science Fund supported 884 “library, information, and archival science” research projects, which were classified into 16 themes . The distribution is reasonable, balancing traditional fields (library management, publishing, archival work, information organization, retrieval, services, users, and theoretical studies) with emerging directions (knowledge management, innovation, information law, policy, informatization, competitive intelligence, and network research). Notably, research on informetrics and scientific evaluation increased significantly, indicating growing scholarly attention.

5.2 Research Hotspots in National Social Science Fund Projects

COOC6.7 [18] segmented all project titles and generated co-occurrence matrices. VOSviewer analyzed 116 keywords with total co-occurrences $ $80, producing a research theme map [Figure 3: see original paper]. Node size indicates degree centrality, line thickness shows co-occurrence frequency, colors represent clusters, and distance indicates relationship strength.

From 2016-2020, research focused on major nodes like “library,” “data,” “infor-

mation," "knowledge," and "service," reflecting the discipline's origins in library science and its mission to provide information services for decision-making departments and society, centered on "data," "information," and "knowledge." Six clusters emerged:

(1) **Cluster 1: Library Construction and Services Under Data Openness.** Co-occurrence of "library," "society," "nation," "social media," "collaboration," "data openness," and "intelligence" reflects libraries' social service mission, promoting user-platform interaction and collaboration toward intelligent services in the data openness era.

(2) **Cluster 2: Emergency Services for Emergencies in Big Data Environments.** Co-occurrence of "big data environment," "services," "emergencies," "fusion," "multi-source," "science and technology," "emergency," and "decision-making" shows how library and information work should utilize technology for emergency response and decision support based on multi-source, fused data characteristics.

(3) **Cluster 3: Information Service Theory and Innovation Supported by Internet Technology.** Co-occurrence of "internet," "big data," "information services," "theory," and "innovation" demonstrates how rapid IT and AI development is pushing information services toward intelligent and smart services.

(4) **Cluster 4: Knowledge Organization and Information Technology Research.** Co-occurrence of "user," "network," "digital," "semantic," "literature," "community," "health information," "knowledge," and "mining" represents the discipline's cutting-edge fields. Web 2.0 technologies have changed user behavior patterns, and digital platforms have enhanced information exchange among communities, users, and knowledge, fostering new research areas like network user behavior, health information, semantic studies, and data mining.

(5) **Cluster 5: Information Services and Users Research.** Co-occurrence of "precision," "governance," "public cultural services," "public libraries," "reading promotion," and "user information" shows how information technology and services in public cultural affairs connect with national governance capacity building. "Precision governance" represents Party and state requirements and an important advantage of China's emergency management system.

(6) **Cluster 6: Digital Humanities in Archival Science and Ancient Document Organization.** Co-occurrence of "archival documents," "digitalization," "document organization," "ancient books," "tradition," "database construction," "ethnicity," "China," and "publishing" shows that archival digitalization and digital humanities are research hotspots. As digitalization scales up and standards mature, digital humanities has become a new focus. Ancient document organization, a traditional library

science field, has been transformed by digital technology into important research on digital humanities and digital libraries.

5.3 Research Trends in National Social Science Fund Projects

CiteSpace generated a timezone map by importing keywords with their years [Figure 4: see original paper]. Keywords appearing in 2016 and remaining hot through 2020 include "library," "information services," "database," "social media," "big data environment," "service system," and "digitalization," indicating continued future support for both traditional library services and emerging directions like knowledge innovation, fusion, IT, and digital technology.

"Reading promotion," "social networks," "library services," and "digital library" emerged in 2016. "Network" and "digital" are hallmarks of the information age, with social network platforms promoting reading promotion and knowledge services while improving user reading environments and information exchange.

"Multi-source data," "public cultural services," "digital humanities," and "text mining" appeared in 2017. "Multi-source" characterizes big data, presenting new requirements and challenges for national governance. Smart cities have become a governance hotspot, with multi-source heterogeneous data centers as key command centers. Processing and analyzing multi-source data to support policy-making represents the core of intelligence work.

"User portrait," "knowledge services," and "government data" emerged in 2018. In the service-oriented society era, personalized and digital library knowledge service demands are growing. Multi-dimensional user portraits effectively analyze information behavior and needs, improving service quality and user recognition when applied to library knowledge service systems. "Open," "government," and "data" co-occurrence reflects open data's importance for government reform and public life. Government data opening has become a hot topic in e-government and information management, creating enormous public value and driving economic growth and social development [19].

"Knowledge graph," "ecosystem," and "discipline construction" appeared in 2019. Knowledge graphs represent cutting-edge technology and user behavior research, while disciplinary knowledge systems exhibit ecological characteristics with interdependent and mutually supportive internal knowledge. Examining disciplinary ecosystems reflects developmental paths and construction needs.

"Health community," "public health events," and "user information" emerged in 2020. The COVID-19 pandemic made "public health events" highly frequent. "Health" in library and information science appears in "network health," "network ecological health," and "health information systems" [20], reflecting IT applications in medicine and interdisciplinary integration between library/information science and medical fields—knowledge fusion breaking disciplinary boundaries to drive development.

Conclusion

Through visual analysis of project establishment, completions, outstanding completions, awards, publication dates, and research themes during the 13th Five-Year Plan period, this study reveals the following:

(1) **Project Establishment:** Library, information, and archival science (including archival studies) achieved outstanding results, with total funded projects increasing by 183% compared to the 11th Five-Year Plan. Major special projects increased from zero, with major projects in 2019 (12) tripling those in 2015 (4) and post-funding projects in 2019 (16) doubling those in 2015 (8). This shows the discipline increasingly connects with national governance and social needs, playing a greater decision-support role and demonstrating significantly enhanced disciplinary voice.

(2) **Geographic Distribution:** Economically and educationally developed provinces demonstrate strong disciplinary strength and receive far more projects. Western provinces receive more projects than some central provinces with weaker disciplinary strength due to policy support, suggesting geographic distribution is influenced by both provincial university strength and national policy orientation.

(3) **Important Achievements:** The discipline made significant progress in project completions during the 13th Five-Year Plan, producing important achievements. Outstanding completions for key projects increased substantially compared to previous periods; youth projects improved steadily; western region projects achieved breakthroughs. Awards increased from 1 first prize and 5 second prizes in the 11th Five-Year Plan to 2 first prizes and 12 second prizes in the 13th Five-Year Plan. Both traditional research themes and emerging interdisciplinary topics produced outstanding results, showing that IT development promotes disciplinary fusion and that emerging high-heat research themes have generated important achievements in the information age.

(4) **Research Hotspots and Trends:** Current fund project hotspots reflect integration of traditional research with IT, including library construction and services in the information age, intelligence technology applications and smart services, social media and internet IT, digital humanities in archival science, and ancient document organization. Trends show close integration with digitalization and intelligence under big data, with interdisciplinary fields like information ecology, information health, and medical health information becoming future research hotspots. Knowledge fusion further breaks disciplinary boundaries to drive development.

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Author Contributions

Ma Feicheng: Topic selection, framework design, paper guidance
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Li Peiping: Chart production
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Progress of Library and Information Science and Archival Science During the 13th Five-Year Plan: Analysis of National Social Science Fund Programs

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Abstract:
[Purpose/significance] The national science fund programs are the main body

of funded projects in humanities and social sciences disciplines in China. Therefore, the analysis of fund programs during the 13th Five-Year Plan period is helpful to master the development of library, information, and archival science (including archival science) in the past five years. [Method/process] Based on the National Social Science Fund programs, this paper summarizes the development and changes of library, information, and archival science during the 13th Five-Year Plan period through visual analysis of project establishment number, project area distribution, outstanding achievements number, awards number, and research theme distribution. [Result/conclusion] This paper finds that the number and quality of projects are steadily improving, and the number of awarded projects has increased compared with the 11th and 12th Five-Year Plan periods. The research hotspots of library, information, and archival science mainly reflect the combination of traditional research fields and information technology, including digital library, intelligent service, digital construction, social media and Internet information technology, digital humanities research of archival science, and the arrangement and utilization of ancient books and documents. The research trend of the fund programs is reflected in the close combination of library, information, and archival science with digitalization and intelligence under the background of big data. Under the background of knowledge fusion, the research of healthcare and medical information reflects the integration of library, information, and archival science and medical fields.

Keywords: 13th Five-Year Plan; library, information, and archival science; discipline progress; funded program; visual analysis

Note: Figure translations are in progress. See original paper for figures.