

# Research and Evolution Based on Library and Information Science in China

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**Abstract:** Contemporary society is an information society with highly developed information. Its network and digital characteristics are bringing tremendous changes to the whole society. China's library and information science is no exception, and its research content is also expanding. It is a core journal that can reflect the actual situation of research in the subject area and conduct academic exchange as an authoritative representative of a certain subject area. Therefore, it is of great practical significance to conduct comprehensive research based on the development history of library and information science, quantitative and qualitative analysis of academic journal articles, research related topics and keywords, not only to further understand library and information science, but also to accumulate knowledge of library and information science, and also through scientific development trend, based on the experience summarized by the predecessors, allows us to more fully recognize the important role of library science and information science, and to improve the theoretical literacy and research level of relevant researchers. At this stage, it is even more necessary for researchers to look at and study library and information science with a developmental perspective. Based on this, the article mainly analyzes the research significance of library and information science, and analyzes the output of China's library and information science journals. It uses Ucinet software to visualize the main research hotspots, and finally analyzes the dynamic factors affecting the research of library and information science in China in order to provide a reference.

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## 1 Significance of research

Compared with other disciplines, although the development of library and information science started late, it can effectively help us to grasp the theory, thoughts and research methods of library and information science more comprehensively by summarizing its history and evolution. By reviewing the historical development process of library and information science, we can better analyze the possible shortcomings of the current library and information science, and further plan the next development plan. Moreover, the development of library and information science has attracted a lot of attention in China. In this trend of localization, today's society has also put forward higher requirements, so strengthen the research on library and information science, and it is essential to build a sound system of disciplines. Previously, the research on the development history of the library and information sciences was basically based on a large number of relevant data on the analysis of literature, focusing on "Chinese book history" and "Chinese library career history". The shortcoming of the analytical data obtained is that the time span is not enough, and most of them are empirical knowledge, so the value for reference is limited<sup>[1]</sup>. This paper combines the various academic journal papers collected in China from 1987 to 2011 to analyze the development of library and information science in different regions. Through the method of measurement analysis, Ucinet visualization technology is used to reflect China's library and information science in a large span, true

and intuitive. The evolutionary law further enriches the research content and research methods of library and information science in China.

## 2 Quantitative analysis of the output of the journal of library and information science in China

### 2.1 Analysis of the total amount of documents issued

According to the research data, between 1987 and 2011, the number of 19 core journal articles published by libraries in China's library and information sciences showed an overall upward trend. In this trend, books can be published according to the number of articles published in journal articles. The development of information science is roughly divided into the following stages: (1) 1987-1994 is a period of stable development, because this period is also in the late 1980s and early 1990s, this society has been seriously affected by the market economy. The beginning of library and information science has seriously hindered its development speed until the second half of the period. The amount of publications gradually showed a trend of growth, but it was slower; (2) 1995-2000 was the period of automation. At this stage, the salient feature is that the amount of documents has a clear upward trend, and computer technology has begun to be widely used in various fields of libraries, breaking through the traditional library and information technology, and the establishment of the corresponding

literature database indicates that the library and information science has entered at this stage. A new phase of automated management is also an important stage for achieving reform<sup>[2]</sup>; (3) Networking from 2001 to 2005 during the exhibition period, compared with the automation period of the previous stage, the number of documents issued at this stage increased more rapidly. The overall number was higher than 49% in 2000. The popularity of Internet technology, coupled with the gradual improvement of the market economic system, changed the books. The development direction of information science and the strengthening of relevant technical conditions have made the research of library and information science in China more profound and new and more excellent researchers have been added to it; (4). 2006-2011 is a period of rapid development. The number of articles published at this stage has exceeded 6,000 in total, which means that the development of China's library and information industry has achieved objective results. Moreover, with the diversification of information dissemination methods and the increasing diversity of communication channels, the development of library and information science has achieved a qualitative change, and its development has reached a higher level.

### 2.2 Temporal and spatial distribution of the amount of documents

Based on the regional distribution of library and information science in China, this study counts the number of publications in the top four provinces in the above four stages, as shown in Table 1.

**Table 1.** Regional distribution volume

Sending area	Total amount of documents	1987-1994	1995-2000	2001-2005	2006-2011
Beijing	10850	1756	2230	2678	4186
Guangdong Province	8810	1009	1593	2714	3494
Hubei Province	7878	1196	1533	2247	2902
Jiangsu Province	7048	780	1194	2071	3003
Shanghai	5145	1128	988	1150	1879
Hunan Province	4085	619	674	1151	1641
Tianjin	3782	282	748	1017	1735
Zhejiang Province	3652	314	534	1236	1568
Heilongjiang Province	3330	744	896	773	917
Jilin Province	3320	583	589	845	1330

According to the data in Table 1, the amount of publications in each region has basically maintained a growth trend. It can be seen that in recent years, I have been able to develop the speed of library and information science relatively quickly.

### 3 Analysis of the research hotspots of library and information science in China

Usually, keywords can represent the core theme of an article, because keywords are words that are selected from the article to summarize the important information of the article. Therefore, by searching for keywords, it is possible to obtain desired related information from the literature database, that is, search information points of various databases<sup>[3]</sup>. Some keywords, because of the wide application, involve a wide range of knowledge, and can even reflect the current research hotspots of a certain subject, so when studying a certain subject, you can start from the relevant keywords and analyze the trend. At present, the application of word frequency analysis is very extensive, and its analysis results provide a reliable reference value for research, and

have gradually formed a relatively complete unique theoretical system.

#### 3.1 Visualization of hot issues in different periods based on Ucinet knowledge mapping

For the determination of high-frequency terms, there are currently two main methods, which are basically based on the principle of metrology. One of the methods mainly relies on the past experience of researchers, and weighs the number of selected words and the frequency of occurrence. Finally, a set of high frequency words is selected, and its threshold is about 40%. The main drawback of this method is that the subjectivity of the researchers is too large, which will affect the final analysis results to a large extent. Another method is to combine the cumulative frequency curve and judge the keyword frequency according to the second law of Zipf. In this study, the two methods are comprehensively considered to determine the criteria for keyword selection, as shown in Table 2. According to the study, a total of 1422 keywords were selected for the principal and interest study.

Table 2. Standard list of words

Period	Frequency	Number of words taken	Cumulative Frequency(%)
1987-1994	≥28	448	40
1995-2000	≥22	425	45
2001-2005	≥22	418	50
2006-2011	≥23	579	50

##### 3.1.1 Smooth development period (1987-1994)

This stage mainly has the following characteristics: (1) the research themes of library and information science in China at this stage are: library and information industry, library construction, document classification and cataloguing, and information science research. Among them, library construction, library career development and intelligence work are the main research objects. The research boundaries between them are clear and distinct, but together constitute a complete architecture<sup>[4]</sup>. (2) The development of the library business keeps pace with the times, which can be clearly seen from related keywords, such as market economy, paid services and library education. Moreover, the state has become more perfect in the formulation and regulation of library, and has gradually established a reasonable management system. (3) The literature resources construction has achieved good results. In the actual research work, scholars

are also seeking more reasonable collection structure, system and utilization rate to ensure the quality of literature resources and further optimize the collection quality and structure system. This has enabled the construction of document resources to complete the leap from micro-construction to macro-construction, changed the previously isolated and scattered collection structure, and fully improved the utilization of literature resources, and the overall layout of the literature resources was further improved. (4) At this stage, the research on intelligence theory and practice is so hot that it is booming. Therefore, scholars are actively exploring how the library and information science can carry out the next step under the new situation, in order to effectively and continuously improve the overall research level of library and information science and enhance the quality of intelligence and education services in various types of libraries.

##### 3.1.2 Automation period (1995-2000)

The so-called automation mainly refers to the automation level of library services, including digital libraries, resource sharing, information services, etc. The database is the center around this stage of work, and the applied research method is “Chinese map method”. This method can be used for literature. In-depth research and analysis of information can effectively increase the number of vocabularies available for reference, improve the quality of keywords, and achieve the goal of optimizing the structure of vocabulary.

### **3.1.3 Networking Period (2001-2005)**

The rapid development and popularization of Internet technology has accelerated the development of library and information science. In the process of library and information research, digital library technology has penetrated into various research fields, such as digital resources, intellectual property, metadata and so on. It has become a hotspot of attention at present, and it also shows the development trend of information under the conditions of network. In this period, individualization, knowledge and systemization became its exclusive features. The construction and application of efficient libraries was the most obvious, providing convenient network information services and reasonable information resource management for teachers and students<sup>[5]</sup>. With the high degree of freedom of information retrieval, it will involve the intellectual property rights of information resources. In this respect, the research on library and information science in China is also gradually strengthened.

### **3.1.4 2006-2011**

This stage is the stage in which library and information research gradually forms a mature system, and the focus of work is gradually transferred to the construction of knowledge management. The main contents are knowledge sharing, knowledge service, tacit knowledge, knowledge innovation, knowledge transfer, knowledge retrieval, knowledge organization, etc.<sup>[6]</sup>. These become new high-frequency keywords, leading the current research direction. The knowledge management at this stage needs to point out that the knowledge management of enterprises is also involved, and the application of its theory and practice has also attracted widespread attention. It is included in the management system of competitive intelligence.

## **4 The main factors affecting the study of library and information science in China**

Library and information institutions are the key institutions for the study of library and information, and with the development of society, it has become an important part of social organizations. As far as the development history of China’s entire intelligence research is concerned, there are many factors affecting its progress, but it is mainly due to several key factors such as economy, politics and technology. The following are some of the main factors affecting the research of library and information science in China.

### **4.1 Political factors**

The research and development of the library and information discipline, in addition to the industry’s own increased investment, the macro-control of relevant national policies is an important link that can provide strong guarantee for its development<sup>[7]</sup>. On the one hand, only the central government will provide financial support, and the research project will be carried out smoothly. It also provides a high-quality platform for scholars’ research work, further promoting the construction and development of library and information science. The successful case at this stage is that the construction of digital libraries in China is fast and has achieved considerable results. This is precisely because the country attaches great importance to the construction of digital libraries and has increased investment, which has also had a profound impact on the overall construction of digital libraries in China<sup>[8]</sup>.

### **4.2 Economic factors**

The study of library and information science in China has the characteristics of regional change. The main reason is that the economic development in various regions of China is not balanced. Therefore, economic factors are an important factor affecting the research of library and information science in China. Economic factors include people, finances, and things. The economic level of a region will directly determine the level of development of its library and information industry. Therefore, to a certain extent, economic strength can reflect the actual situation of the library and information industry. For the current existence, the population quality, cultural education level and literary resources in the eastern region are higher than those in the western region, and economic factors can give a more reasonable answer.

### **4.3 Information Technology Factors**

In essence, library and information science is

actually the study of information. The development of information technology can promote the rapid progress of library and information science. Looking back at the historical development process, the level of library and information science in each period is closely related to the current level of information technology. This is also the development law that must be followed in the development of library and information industry<sup>[9]</sup>.

#### 4.4 Social and environmental factors

The development speed of the library and information industry will also be directly affected by the entire social environment. If the society is harmonious and stable, the academic atmosphere is active, and the library and information industry is bound to show a booming trend. The production capacity of literature and books will be greatly enhanced. The public's demand for books and journals is rapidly expanding. However, the construction of some libraries cannot meet this demand. Construction funds are relatively short, and various contradictions are increasingly prominent<sup>[10]</sup>. Most of the countermeasures taken by the library are from their own perspective. They can only solve some contradictions on the surface. The dynamic contradictions and deep-rooted problems of the library must consider the current social environment and find the most scientific solutions.

#### 4.5 Foreign library and information service

The research methods and concepts of foreign library and information science have provided effective reference experience for the library and information industry in China to a certain extent and the idea of "spreading Western Learning to the East" has also promoted the establishment and transformation of modern and contemporary libraries in China. The foreign library and information industry has important practical significance for the development of the library and information industry in modern China.

In summary, China's library and information science research is in a stage of rapid development. In

addition to considering its own development rules and limitations, it should also be combined with the current background of the times to further transform library and information science into high maturity. A professional and comprehensive university department enhances the knowledge management system to better meet the needs of the times.

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