

## Development Approach and Preliminary Framework for a Classification Scheme of Chinese Library Science Research Topics: Postprint

**Authors:** Zhang Xuemei, Huang Wei

**Date:** 2023-08-26T00:00:00+00:00

### Abstract

[Purpose/Significance] By attempting to construct a self-built subject classification scheme, this study provides an evaluative benchmark for research on library science subject classification schemes, and facilitates the broadening of research perspectives and deepening of research content on subject distribution in Chinese library science. [Method/Process] Comprehensive collection and analysis were conducted on Chinese library science journal articles, dissertations, monographs, and National Social Science Fund project topics from 1978 to 2015, and the subject classification scheme was formulated based on three essential construction elements. [Results/Conclusion] This study constructed a Chinese library science subject classification scheme containing 9 first-level subjects, 70 second-level subjects, and 26 third-level subjects. Future research will build upon this study to analyze the historical evolution of research subjects in Chinese library science, and continuously update and refine the scheme according to subject development.

### Full Text

#### Preamble

#### The Construction Idea and Preliminary Framework of the Subject Classification Table for Library Science Research in China

Zhang Xuemei<sup>1, 2</sup>, Huang Wei<sup>1</sup>

<sup>1</sup> School of Management, Jilin University, Changchun 130022

<sup>2</sup> Harbin Normal University, Harbin 150025

### Abstract

[Purpose/Significance] This study attempts to construct a self-developed subject classification table to provide a benchmark for evaluating research on library

science subject classification tables in China, thereby broadening perspectives and deepening content in the study of subject distribution patterns in Chinese library science. **[Method/Process]** Through comprehensive collection and analysis of Chinese library science journal articles, dissertations, monographs, and National Social Science Fund project topics from 1978 to 2015, a subject classification table was developed based on three essential components. **[Result/Conclusion]** A subject classification table for Chinese library science was constructed, containing 9 first-level subjects, 70 second-level subjects, and 26 third-level subjects. Future research will build upon this work to analyze the historical evolution of Chinese library science research subjects and continuously update and improve the table according to thematic developments.

**Keywords:** Library Science; Subject Classification Table; Subject Distribution

**Classification Number:** G254

**DOI:** 10.13266/j.issn.0252-3116.2018.07.013

A subject refers to the central issue discussed in a document [1]. Subject distribution research examines what subjects are included in a certain number of documents during a specific period and investigates the characteristics and patterns of these subjects' distribution. Subject distribution research includes self-developed subject distribution research and alternative subject distribution research [2]. Self-developed subject distribution research conducts thematic distribution studies based on independently constructed subject classification tables, while alternative subject distribution research borrows existing classification systems. Self-developed subject classification table research involves analyzing published literature to extract subjects, compiling them into a subject classification table, and then examining the characteristics and evolutionary trends of subject distribution. This approach is an important component of self-developed subject distribution research.

Foreign library science scholars have emphasized the construction of self-developed subject classification tables, accumulating substantial literature. Early exploratory studies include those by T. Laborite et al. (1976) [3], M.M. Nour (1980) [4], G. Eaton (1983) [5], and P.E. Feehan et al. (1987) [6]. More influential works include S.E. Atkins (1988) [7], K. Järvelin and P. Vakkari (1990) [8], and more recent attempts by E. Crumley (2002) [9], L.I. Meho (2005) [10], and C.R. Hildreth (2007) [11] in the new century.

In contrast, domestic Chinese library science has seen limited research on self-developed subject classification tables. One representative approach is that of Chu Jingli (2004), who reviewed major articles from foreign print journals and online resources in 2003, summarizing the main research topics in foreign library and information science into eight aspects: basic theory, resource development, user services, information portals, digital libraries, knowledge management, library management, and information science [12-13], with detailed discussions of each aspect. Taiwanese scholars Ouyang Chongrong et al. [14], when studying subject distribution in Taiwan's library and information science, suggested that these eight aspects proposed by Chu Jingli could serve as a reference for

subject classification research—a view with which this paper concurs. Although this work aimed to explore the current state of foreign library and information science research and did not explicitly propose a subject classification table, it constitutes a framework-type self-developed subject classification table study with only first-level subjects according to the definitions of subjects and subject distribution research.

Another representative approach is that of Hua Weina (1995), who conducted a qualitative and quantitative analysis of 1,600 research papers published in Chinese core library and information science journals in 1981, 1984, and 1987. She categorized subjects into five first-level themes: general discussions, library and information work and career research, theoretical research, applied research, and others, with 22 second-level themes [15]. Although this study did not explicitly mention a subject classification table, its constructed classification system was relatively mature, with clear divisions between first-level and second-level subjects, demonstrating more detailed subject classification. The absence of explicit reference to self-developed subject classification tables indicates that domestic research in this area remains in the exploratory stage.

The lack of self-developed subject classification table research in Chinese library science adversely affects the understanding of subject distribution patterns in Chinese library science and comparative studies between Chinese and global library science. This paper aims to construct a Chinese library science subject classification table through comprehensive collection and content analysis of four major types of academic resources—journal articles, dissertations, monographs, and National Social Science Fund project topics—from 1978 to 2015. It is hoped that this study will provide a valuable attempt at constructing self-developed subject classification tables, offer a benchmark for evaluating thematic distribution research in library science, and help broaden research perspectives and deepen research content in Chinese library science subject distribution studies.

## 2 Construction Approach for the Chinese Library Science Subject Classification Table

### 2.1 Essential Components for Constructing the Subject Classification Table

Scientifically constructing a Chinese library science subject classification table requires three essential components:

#### 2.1.1 Comprehensiveness of Source Data

The construction must be based on a sufficient quantity and variety of literature that can represent Chinese library science research. Source data must be authoritative, representative, and typical, meeting certain quantitative requirements to comprehensively reflect the fundamental elements and authentic characteristics of the research field. The data must also possess richness, demonstrating the differentiated features of academic achievements in various carrier forms.

### 2.1.2 Scientificity of Subject Setting

Constructing a library science subject classification table requires not only a certain amount of literature but also library science experts who can master this literature. Specifically, experts should have comprehensive and in-depth knowledge of the research scope and specific research areas of library science, understand how to distinguish library science from other disciplines, identify which subjects and issues belong to the library science research domain, and determine what the next-level central subjects are [16]. Only then can the comprehensiveness of first-level subject settings and the rationality of hierarchical subject affiliation be ensured.

### 2.1.3 Accuracy of Subject Categorization

Given the current limitations of machine learning in determining the unique (most important) subject of an article based on its content, manual analysis must be employed for subject categorization. However, data processing and analysis can be assisted by software tools. Therefore, a certain number of personnel are required to categorize literature under expert guidance. It is essential to ensure the accuracy and consistency of subject categorization by different individuals and by the same individual at different times.

## 2.2 Data Sources

To comprehensively grasp the research content of Chinese library science and objectively construct a subject classification table, this study collected and analyzed four major types of library science academic resources published between 1978 and 2015: journal articles, dissertations, monographs, and National Social Science Fund project topics. The details are shown in .

\*\* Basic Data Collection Information\*\*

- **Journal Articles:** From CNKI database, full-text data from 9 core library science journals (Journal of Library Science in China, Journal of Academic Libraries, Library Tribune, Library, Library Development, Library Journal, Library Theory and Practice, Library Work and Research, and Library Science Research—note that Library Science Research was only available from 1982 in CNKI) from 1978-2015 were selected, yielding 56,343 records after cleaning (the sample did not include dual-category library and information science journals).
- **Dissertations:** From Wanfang Data Knowledge Service Platform, 2,169 doctoral and master's dissertations in library science from 1991-2015 were selected and cleaned.
- **Monographs:** From the National General Bibliography CD-ROM version, 4,638 records under the G25 category of the Chinese Library Classification (CLC) from 1978-2015 were selected and cleaned.
- **National Social Science Fund Projects:** From the National Social Science Fund Project Database, 893 library science projects under the

library, information, and documentation discipline from 1991-2015 were selected, with each project topic counted as one data sample (to avoid overlap with the other three types of achievements, series of outputs from each project were not included in this sample statistics).

After collecting all data, they were imported into Excel spreadsheets for further cleaning and screening, ultimately obtaining 64,043 records. Among the four types of data, journal articles were the most numerous and most difficult to screen. The screening principles were the same for all resource types. In this study, journal articles were screened first, followed by dissertations, monographs, and National Social Science Fund projects. Using journal articles as an example, the following content was excluded from statistics: (1) articles commemorating library anniversaries and speeches; (2) articles introducing various publishing houses (such as Commercial Press, SDX Joint Publishing Company, Zhonghua Book Company, etc.); (3) reports on library association activities and personnel lists (excluding the Constitution of the Library Society of China and Regulations on Library Work in Chinese Higher Education Institutions); (4) library briefings, academic report coverage, other activity reports, leadership speeches, meeting minutes, press interviews, obituaries, and other non-academic library science content.

### **2.3 Construction of the Classification System**

The expert survey method was used to construct the classification system and determine the principles and methods of subject classification.

#### **2.3.1 Experts Proposed the Initial Draft of the Library Science Subject Classification Table**

In the early stage of constructing the subject classification table, four library science experts from Jilin University and Heilongjiang University were invited to guide and participate. Based on their years of teaching and research experience, the experts proposed an initial draft of the library science subject classification table comprising 9 first-level subjects and 81 second-level subjects, including library science theory (general), library management, library automation and networking, library services, information resource development, documentation, bibliography, libraries worldwide (excluding China), and others. During the actual subject categorization process, the experts timely revised the subject classification table according to emerging issues.

#### **2.3.2 Experts Determined the Principles and Methods of Subject Classification**

##### **(1) Classification Principles**

If a document covers more than one subject, only the most important subject is selected. Subjects with three-level classifications should be categorized to the third level; those without third-level classifications should be categorized to the second level; and those without second-level classifications should be categorized to the first level.

## (2) Classification Methods

The identification of research subjects in journal articles primarily relies on three levels: title, keywords, and abstract, with the original text consulted when necessary. Similar methods apply to literature in other carrier forms. Classification can refer to the classification table annotations, which are added and supplemented during the classification process based on discussion outcomes. New issues encountered during formal classification are resolved through expert-guided online real-time communication platforms and regular group discussions.

## 2.4 Statistical Data Analysis

This study involves 64,043 sample records from four types of literature, corresponding to 9 first-level subjects, 70 second-level subjects, and 26 third-level subjects. Due to space limitations, only the 9 first-level subjects and the top 5 second-level and third-level subjects are listed here, arranged in descending order by quantity. Other second-level and third-level subjects are not enumerated in detail. See for details.

\*\* Statistics of Subjects at All Levels\*\*

First-Level Subjects	Top 5 Second-Level Subjects	Top 5 Third-Level Subjects
Library Management	Information Organization, Knowledge Organization	Information Retrieval and Information Services, Knowledge Services
Resource Development and Organization	Information Resource Development and Knowledge Management	Reference Services
Library Services	Documentation and Information Classification	Information Services, Knowledge Services
Library Automation, Networking, and Informatization	Library Management General Theory	Libraries Worldwide
Library Science Theory (General)	Library Automation and Networking	

## 2.5 Subject Categorization

### 2.5.1 Classification Training

Due to the large sample size, multiple personnel were required to collaborate. To ensure consistency in classification results, subject classification training was conducted before formal classification. The training steps were as follows: (1) Experts and the project leader explained the classification methods; (2) Six team members independently categorized the same 100 papers, with experts

and the project leader comparing and discussing each paper's classification results on-site; (3) Another 100 papers were selected for comparison and discussion following the same procedure; (4) After multiple rounds of training, team members reached consensus on classification standards when they consistently categorized the same literature into corresponding categories.

### 2.5.2 Formal Classification

After training, team members mastered the basic procedures and methods of subject classification identification. They then divided the work and conducted formal classification according to the training standards, paying attention to the accuracy of entered classification names.

## 2.6 Construction Process of the Subject Classification Table

The construction process of the subject classification table consists of three main stages, as shown in [Figure 1: see original paper].

[Figure 1: see original paper] Construction Process of the Subject Classification Table

## 3 Construction Results of the Chinese Library Science Subject Classification Table

### 3.1 Main Content of the Subject Classification Table

Following the above approach and through extensive consultation, demonstration, and multiple revisions, a Chinese library science subject classification table was finalized, comprising 9 first-level subjects, 70 second-level subjects, and 26 third-level subjects. See for details.

\*\* Chinese Library Science Subject Classification Table\*\*

- A Library Science Theory (General)
  - A1 General Theory of Library Science
  - A2 Research Objects of Library Science
  - A3 Theoretical Foundations of Library Science
  - A4 Future Library Research
  - A5 Branch Disciplines of Library Science
  - A6 Theoretical System of Library Science
  - A7 Comparative Library Science
  - A8 Research Methods in Library Science
  - A9 Core Values of Libraries
  - A10 Library Rights
  - A11 Library Spirit and Ethics
  - A12 Library Functions
  - A13 Library Social Responsibility
  - A14 Library User Rights
  - A15 Library Science Education

- A16 Professional Competence of Librarians
- A17 Library Philosophy
- A18 Library History and Library Science History
  - A181 Library History and Book Collection History
  - A182 Library Science History
- A19 Textbooks
  - A191 Formal Academic Education Textbooks
  - A192 In-service Training Textbooks
- A20 Information Equity, Information Equality, Information Rights
- A21 Postmodern Library Science
  
- B Library Management
  - B1 General Theory of Library Management
  - B2 Management of Various Types of Libraries
  - B3 University Library Management
  - B4 Library Management in Hong Kong, Macao, and Taiwan
  - B5 Grassroots Library Work and Management
  - B6 General Theory of Modern Library Undertakings
  - B7 Library Industry Management and Library Associations
  - B8 Library Committees and Library Boards
  - B9 Library Systems
  - B10 Library Regulations and Rules
  - B11 Library Organizational Structure
  - B12 Human Resource Management
    - B121 General Theory of Human Resource Management
    - B122 Library Professional Access System
    - B123 Personnel Training
    - B124 Subject Librarian and Reference Librarian Systems
  - B13 Library Cooperation, Library Networks, Library Consortia
    - B131 Library Cooperation
    - B132 Library Networks
    - B133 Library Consortia
  - B14 Library Legislation
  - B15 Library Culture and Library Image
  - B16 Library Evaluation
  - B17 Library Buildings and Equipment
  
- C Library Automation and Networking
  - C1 Library Automation, Networking, and Informatization
  - C2 Digital Libraries
    - C21 General Theory of Digital Libraries
    - C22 Mobile Libraries
    - C23 Cloud Computing Services
    - C24 Open Access
    - C25 Library 2.0, Library 3.0
  - C3 Information Retrieval Technology

D Library Services

- D1 General Theory of Library Services
- D2 Reader Services
- D3 Information Retrieval and Information Services, Knowledge Services
  - D31 Information Services, Knowledge Services
  - D32 Reference Services
  - D33 Information Retrieval Psychology and Behavior
- D4 Services for Disadvantaged Groups
- D5 Library Opening Hours
- D6 Reader Activities and Reading Guidance

E Information Resource Development and Knowledge Management

- E1 Information Resource Management
- E2 Information Organization and Knowledge Organization
  - E21 General Theory of Information Organization and Knowledge Organization
  - E22 Documentation and Information Classification
  - E23 Information Description
  - E24 Acquisition
  - E25 Information Preservation
  - E26 Resource Development and Organization
  - E27 Digital Resource Development and Management
- E3 Resource Composition and Utilization
- E4 Information Resource Co-construction and Sharing
- E5 General Theory of Knowledge Management

F Documentation

- F1 Documentation Science
- F2 Informetrics and Bibliometrics
- F3 Book History and Book Systems
- F4 Textual Criticism
- F5 Collation Studies
- F6 Prefaces, Postscripts, and Book Reviews
- F7 Document Type Studies
- F8 Ancient Book Preservation and Document Protection

G Bibliography

- G1 General Bibliography
- G2 Specialized Bibliography
- G3 Bibliographies, Abstracts, and Indexes
- G4 Union Catalogs
- G5 History of Bibliography

H Libraries Worldwide

I Others

- I1 Reference Materials
- I2 Collected Papers
- I4 Encyclopedias
- I5 Library Science Professional Journals

### 3.2 Annotations of the Subject Classification Table

Annotations are an essential component of any documentation classification table. The scientificity and accuracy of annotations often determine the scientificity and accuracy of the entire subject classification table's category design. The subject classification table constructed in this paper inevitably involves numerous annotations, mainly including interpretations of categories at all levels, subject scope and examples, and relevant explanations. Due to space limitations, only brief introductions to the scope and names of subordinate categories under each of the 9 first-level subjects are provided below.

#### 3.2.1 First-Level Subject: Library Science Theory (General)

This first-level subject includes 21 second-level subjects and 4 third-level subjects. Categories requiring annotation are as follows:

- **General Theory of Library Science (A1)**: Includes interdisciplinary library science, application of non-library science theories in library science, and scientific library science.
- **Future Library Research (A4)**: Includes library development strategies and trends.
- **Branch Disciplines of Library Science (A5)**: Includes library economics, library sociology, and library ecology.
- **Core Values of Libraries (A9)**: Includes library service declarations, intellectual freedom, and professional expertise.
- **Library Spirit and Ethics (A11)**: Includes library spirit and library professional ethics.
- **Library Functions (A12)**: Includes library public welfare, status, and roles.
- **Library User Rights (A14)**: Includes user rights and privacy protection.
- **Library Science Education (A15)**: Includes library science talent cultivation.
- **Library History and Library Science History (A18)**: Under this second-level subject, the third-level subjects Library History and Book Collection History include studies of Chinese and foreign library science figures, ancient official and private book collections, and histories of individual libraries.

#### 3.2.2 First-Level Subject: Library Management

This first-level subject includes 17 second-level subjects and 7 third-level subjects. Categories requiring annotation are as follows:

- **General Theory of Library Management (B1)**: Includes integration

of library and information science, comparative studies of Chinese and foreign libraries, general discussions on library management ideas, methods, and theories, micro-level discussions on specific library management work, management by objectives, and topics not included in other categories.

- **Management of Various Types of Libraries (B2)**: Includes general discussions on national libraries, public libraries at all levels, primary and secondary school libraries, children's libraries, trade union libraries, military libraries, and libraries for people with disabilities.
- **University Library Management (B3)**: Includes general discussions on university library management.
- **Grassroots Library Work and Management (B5)**: Includes various township, rural, and community reading rooms.
- **General Theory of Modern Library Undertakings (B6)**: Includes the library tertiary industry.
- **Library Industry Management and Library Associations (B7)**: Includes library societies.
- **Library Systems (B9)**: Includes general theory of library systems, library policies and their elaboration, and library governance.
- **Library Regulations and Rules (B10)**: Includes fines and confiscations.
- **Human Resource Management (B12)**: Under this second-level subject, the third-level subject General Theory of Human Resource Management includes professional title evaluation, librarian research management and studies, and post responsibility systems.
- **Personnel Training (B123)**: Includes librarian continuing education and volunteers.
- **Library Cooperation, Library Networks, Library Consortia (B13)**: Under this second-level subject, the third-level subject Library Cooperation includes coordination, regional library cooperation, inter-library exchanges, and international inter-library exchanges.
- **Library Legislation (B14)**: Includes library legislation, library regulations, information legislation, database legislation, information policies, and intellectual property rights.
- **Library Culture and Library Image (B15)**: Includes library culture, library organizational culture, library image, library spiritual civilization construction, and library promotion.
- **Library Evaluation (B16)**: Includes macro-level library evaluation, library service standards, library performance evaluation, library social benefits, and library economic benefits.
- **Library Buildings and Equipment (B17)**: Includes library construction standards.

### 3.2.3 First-Level Subject: Library Automation and Networking

This first-level subject includes 3 second-level subjects and 5 third-level subjects. Categories requiring annotation are as follows:

- **Library Automation, Networking, and Informatization (C1)**: In-

cludes database construction, library integrated management systems, application of automated auxiliary technologies, library work networking, institutional repositories, and library informatization.

- **General Theory of Digital Libraries (C21)**: Includes electronic libraries, virtual libraries, hybrid libraries, and information security issues related to digital libraries.
- **Mobile Libraries (C22)**: Includes mobile phone libraries.
- **Information Retrieval Technology (C3)**: Includes manual retrieval techniques such as Chinese character arrangement methods, various indexing methods, and subject navigation.

### 3.2.4 First-Level Subject: Library Services

This first-level subject includes 6 second-level subjects and 3 third-level subjects. Categories requiring annotation are as follows:

- **General Theory of Library Services (D1)**: Includes main-branch library systems, general discussions on library services, and university libraries opening to the public.
- **Reader Services (D2)**: Includes general discussions on reader or user services, how to use libraries, user studies, user education, fee-based services, and self-service libraries.
- **Information Services, Knowledge Services (D31)**: Includes data mining, knowledge discovery, and smart libraries.
- **Reference Services (D32)**: Includes consultation services, SDI services, novelty search services, information push services, virtual reference, digital reference, and book promotion.
- **Information Retrieval Psychology and Behavior (D33)**: Includes information literacy education, information retrieval education, and information retrieval courses.
- **Services for Disadvantaged Groups (D4)**: Includes services for the elderly, children, women, people with disabilities, and migrant workers.
- **Reader Activities and Reading Guidance (D6)**: Includes reading activities, human libraries, and living libraries.

### 3.2.5 First-Level Subject: Information Resource Development and Knowledge Management

This first-level subject includes 5 second-level subjects and 7 third-level subjects. Categories requiring annotation are as follows:

- **Information Resource Management (E1)**: Includes general theory of information resource management, scientific data management, scientific data services, and data curation.
- **Information Organization and Knowledge Organization (E2)**: Under this second-level subject, the third-level subject General Theory of Information Organization and Knowledge Organization includes ontology theory, semantic web, linked data, semantic analysis, and knowledge association.

- **Documentation and Information Classification (E22)**: Includes knowledge maps.
- **Information Description (E23)**: Includes cataloging, MARC, standardization, metadata, knowledge representation, and bibliographic control.
- **Acquisition (E24)**: Includes book processing.
- **Resource Development and Organization (E26)**: Includes collection development and organization, periodical management, weeding, open-shelf reading, shelving research, and resource integration.
- **Digital Resource Development and Management (E27)**: Includes electronic resources, digital resources, and network information resources.
- **Resource Composition and Utilization (E3)**: Includes literature utilization.
- **Information Resource Co-construction and Sharing (E4)**: Includes knowledge sharing.
- **General Theory of Knowledge Management (E5)**: Includes knowledge management, knowledge innovation, knowledge evaluation, knowledge integration, and knowledge transfer.

### 3.2.6 First-Level Subject: Documentation

This first-level subject includes 8 second-level subjects. Categories requiring annotation are as follows:

- **Documentation Science (F1)**: Includes documentation communication studies.
- **Informetrics and Bibliometrics (F2)**: Includes webometrics, content analysis, citation analysis, co-word analysis, and core journal studies.
- **Book History and Book Systems (F3)**: Includes histories of various types of books from different eras, studies of specific books (such as book prices and titles), etc.
- **Document Type Studies (F7)**: Includes research and organization of various types of materials (journals, newspapers, maps, microforms, etc.), local chronicles, and local literature development and utilization.
- **Ancient Book Preservation and Document Protection (F8)**: Includes document protection and book preservation.

### 3.2.7 First-Level Subject: Bibliography

This first-level subject includes 5 second-level subjects. Categories requiring annotation are as follows:

- **Bibliographies, Abstracts, and Indexes (G3)**: Includes bibliographic references.
- **History of Bibliography (G5)**: Includes historical studies of documents, bibliographies, and indexes.

### 3.2.8 First-Level Subject: Libraries Worldwide

This first-level subject has no second-level subjects. It includes general discussions on libraries worldwide, including introductions to international and

national library organizations (excluding China).

### 3.2.9 First-Level Subject: Others

This first-level subject includes 5 second-level subjects. Categories requiring annotation are as follows:

- **Reference Materials (I1)**: Includes introductions to foreign library science journals and bibliographies.
- **Collected Papers (I2)**: Includes collected papers indexes.

## 4 Analysis and Evaluation

### 4.1 Comparison with the Chinese Library Classification and Chinese Thesaurus

The subject classification table constructed in this study is formed on the basis of knowledge classification and conceptual logic, possessing the basic functions and roles of information retrieval language. Like the Chinese Library Classification (CLC) and Chinese Thesaurus (hereinafter referred to as “the Thesaurus”), it belongs to information retrieval language. From a structural analysis perspective, comparing this study’s subject classification table with the CLC and the Thesaurus can macroscopically reveal its practical significance. Micro-level comparative analysis from a content analysis perspective will be discussed in a separate paper.

#### 4.1.1 Comparison of Generation Process and Purpose

The subject classification table constructed in this study is based on content analysis of published Chinese library science literature—a bottom-up grounded process. The CLC and the Thesaurus were developed to meet practical library work needs, supported by relevant departments, through a top-down generation process. The primary purpose of this study’s subject classification table is for subject distribution research, with the core objective of describing the distribution patterns and development trends of Chinese library science research subjects. The CLC and the Thesaurus are mainly used for book classification, indexing, and retrieval.

#### 4.1.2 Comparison of Category Setting

The CLC is based on scientific classification, organizing category concepts according to the classification system, striving to fully reflect the theoretical system of the discipline while combining the content characteristics of books. The Thesaurus aims to cover all subject term concepts, reflecting the connotation and extension of concepts expressed by entry terms through reference entries, and reflecting hierarchical concepts through broader and narrower terms. The Chinese library science subject classification table constructed in this study covers all subjects presented in existing Chinese library science research achievements. However, its category setting is not a simple superposition or complete listing but is based on in-depth analysis of existing research subjects and macro-level description of rational disciplinary development. Category setting depends on the

need for subject revelation depth and the importance of subject development. For example, under CLC's G258 (Various Types of Libraries and Information Institutions), there are 14 subcategories, while this study's subject classification table only sets B2 (Management of Various Types of Libraries) as one second-level category. This category setting should better facilitate the exploration of subject development patterns and authentically reflect reality.

#### **4.1.3 Comparison of Hierarchical Density**

The CLC classifies and organizes literature from a disciplinary professional perspective, with relatively broad category levels and relatively uniform hierarchical density distribution. However, disciplinary research achievements are not evenly distributed in terms of subject density during disciplinary development, resulting in some categories being unable to objectively and deeply reflect the real situation of subject distribution. In the Thesaurus, all subjects are arranged equally regardless of level or size. Although this facilitates the search for specific subjects [17] and offers good directness, it fails to demonstrate subject affiliation relationships [18] and has poor systematicity. The hierarchical setting of this study's subject classification table is based on the objective existence of existing research subjects, with hierarchical density distribution more closely fitting actual subject distribution.

#### **4.1.4 Comparison of Applicability**

The CLC and the Thesaurus, formulated and revised by authoritative departments, have mature systems and strong stability. However, their slow updates and high compilation costs pose significant challenges from rapid knowledge iteration while limiting their scope of application. The subject classification table constructed in this study represents a beneficial attempt in subject distribution research. Based on content analysis of existing subjects, it presents the latest and most comprehensive picture of current subject development. Through study and learning from the CLC and the Thesaurus, it reflects the scientific system and logical relationships of disciplinary classification. Although its authority and reliability need to be tested, it offers better flexibility and applicability in subject distribution research compared to the CLC and the Thesaurus. Additionally, as library science research continuously expands into new fields [19], subject classification tables for different periods need timely adjustment and supplementation.

### **4.2 Evaluation of the Subject Classification Table**

#### **4.2.1 Advantages of the Subject Classification Table**

##### **(1) Quantitative Research on a Qualitative Basis Can Precisely Present Subject Development Trends**

The construction of the subject classification table is based on comprehensive and in-depth research of achievements in the discipline, representing qualitative analysis of research subjects in the field. The system architecture of the subject classification table describes and presents the main threads of

subject development, representing qualitative judgment of subject evolution. The categorization and statistics of subject achievements over a long period according to the subject classification table represent quantitative research on subject distribution based on qualitative foundations. This research approach can not only reveal the macro context of subject development but also explore quantitative evolution of subjects, thereby more precisely presenting subject development trends.

### **(2) Manual Intervention and Correction Can Compensate for Deficiencies in Machine Statistics**

In alternative subject distribution research commonly applied domestically, computer identification and statistics of keywords or subject terms produce accurate results with quick statistical processes. However, such methods cannot reflect hierarchical relationships between subjects, cannot distinguish weight relationships among multiple keywords or subject terms, and cannot determine the scientificity of keywords or subject terms. Subject distribution research based on the subject classification table involves manual determination and analysis of sample subjects according to the constructed classification table. Through manual intervention and correction, it can distinguish the weights of subject terms, reflect hierarchical relationships, correct inaccurate keywords or subject terms, compensate for deficiencies in computer statistics, and facilitate a more authentic presentation of objective subject development.

### **(3) The System Structure of the Subject Classification Table Can Macroscopically Describe Overall Characteristics of Subject Development**

Throughout the construction of the subject classification table and sample analysis, library science experts provided guidance throughout the process. Based on full discussion of questionable issues and consultation with multiple experts, the system structure of all research subjects was ensured to be more scientific and reasonable. Based on such a system structure, statistics and analysis of research subjects over a long period can incorporate micro-level annual and individual subject development data into the macro system structure. This can demonstrate the overall characteristics of subject development and evolution from a macro perspective and present the main threads and contexts of research subject development through the system structure of the subject classification table, offering important academic reference value for judging rational or irrational disciplinary development.

### **(4) The Hierarchical Relationships of the Subject Classification Table Can Deeply Reflect the Internal Academic Mechanisms Between Subjects**

The subject classification table sets first-level subjects, second-level subjects, necessary third-level subjects, and subject annotations. Second-level subjects provide comprehensive summaries and scientific presentations of the connotation of first-level subjects. Necessary third-level subjects offer detailed distinctions and in-depth descriptions of the scope of some second-level subjects. Sub-

ject annotations provide supplementary explanations and precise definitions of second-level and third-level subjects. Such hierarchical distribution reflects the internal academic mechanisms and interdependent relationships between subjects. Based on this, quantitative statistics can reveal the development status of research subjects in temporal and spatial dimensions (referring to different carriers), deeply explore the academic mechanisms between various research subjects, and scientifically present the mutual influence and promotion in subject evolution.

#### **4.2.2 Limitations of the Subject Classification Table**

##### **(1) High Construction Cost of the Subject Classification Table**

Conducting subject distribution research based on a subject classification table requires first constructing the corresponding classification table, whose quality directly determines the scientificity of research results. Constructing a subject classification table requires in-depth and comprehensive understanding of disciplinary development, reference to the system structures of the CLC and the Thesaurus to build first-level categories, analysis of a certain amount of data samples to organize subject terms in the research field and build second-level categories and annotations, and multiple rounds of verification and revision to ensure the rationality and scientificity of the classification table. All these require long-term research investment, resulting in high construction costs, which to some extent limits its application in domestic subject distribution research.

##### **(2) Subjective Factors in Subject Determination Affect Result Stability**

Conducting subject distribution research based on the subject classification table involves subject determination as the core component. Through content analysis, manually determining the subject affiliation of each document can effectively overcome the problem that machine determination cannot distinguish weights among multiple subjects in the same document. However, manual subject determination places high demands on the determiner. Subjective factors such as the determiner's knowledge accumulation, disciplinary background, and temporal-spatial differences in content analysis inevitably affect the scientificity and rationality of subject classification results. Therefore, in actual subject determination, various methods such as detailed rule formulation, classification training, group discussions, real-time communication, and expert consultation should be employed to correct deviations and minimize subjective influences.

## **5 Application Value and Future Research Prospects**

Through thematic statistical analysis of over 60,000 academic literature records from four types of sources—Chinese library science journal articles, dissertations, academic monographs, and National Social Science Fund projects—over the 38-year period from 1978 to 2015, a Chinese library science subject classification table was constructed, including 9 first-level subjects, 70 second-level subjects, and 26 third-level subjects. In-depth subject distribution research can

be conducted based on this classification table.

### 5.1 Application Value

By counting the number of each third-level subject, the evolution and prosperity of all research subjects in Chinese library science can be discovered, revealing research hotspots and academic blind spots. This can provide references for researchers in academic research topic selection, such as paper writing and project application. Based on the system structure of the subject classification table, summarizing the evolution patterns of Chinese library science research subjects can reveal historical experiences in the theoretical development of Chinese library science and grasp the rational development direction of the discipline. Through the category setting of the subject classification table, comparative studies can be conducted between Chinese and global library science subjects to discover the connectivity between Chinese and international library science research. Comparing subject distribution characteristics across different document types within the discipline can enable comparative and correlation studies on research focuses and subject evolution across different literature forms. Analyzing subject distribution in different core journals can facilitate journal subject evaluation research combined with column settings and journal development history, and summarize subject preferences of different journals to provide references for scholars' submission writing. This subject classification table can also be applied to subject distribution research for different periods and purposes.

### 5.2 Future Research Prospects

The subject classification table constructed in this study aims to comprehensively present the landscape of Chinese library science research subjects. However, during application, it was found that some third-level subjects could be streamlined and merged, and some could appear as annotations. Therefore, in subsequent research, the subject classification table can be refined. Subject classification tables in the subject distribution field both domestically and internationally are not static and require continuous updating and improvement with disciplinary development. Drawing on advanced foreign experiences in this field, future research can combine research methods to analyze library science research content.

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## Author Contributions

Zhang Xuemei: Responsible for literature retrieval, collection, organization, compilation, and extraction, as well as paper writing.

Huang Wei: Responsible for paper framework construction, revision, and review.

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## The Construction Idea and Preliminary Framework on the Subject Classification Table of Library Science Research in China

Zhang Xuemei<sup>1,2</sup>, Huang Wei<sup>1</sup>

<sup>1</sup> School of Management, Jilin University, Changchun 130022

<sup>2</sup> Harbin Normal University, Harbin 150025

**Abstract:** [Purpose/significance] The construction of the subject classification table could provide a target of judgment for an extensive research on subject classification table of Library Science, which helps to broaden the scope and deepen the content on the research of library subject distribution in China. [Method/process] On the basis of the comprehensive collection and analysis from 1978 to 2015 on the Journal of Chinese Library Science monographs, dissertations, academic literature of the national social science fund project, the subject classification table based on the three elements is formed. [Result/conclusion] A table of subject classification of Chinese Library Science is built containing 9 primary subjects, 70 secondary subjects and 26 tertiary subjects. In the future, in view of the research, the historical changes on the study of subject of Library Science in China will be analyzed, and according to the development of the subject, the table will be constantly updated and improved.

**Keywords:** Library Science; subject classification table; subject distribution

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

*Source: ChinaXiv — Machine translation. Verify with original.*