

Quality Management in Chinese Academic Libraries: A Systematic Review

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Abstract: With global digital transformation and higher education evolution, academic libraries are enhancing their information and knowledge management practices. This study responds to this trend by identifying quality management (QM) models discussed and implemented in Chinese academic libraries, as well as by examining the enablers and challenges associated with QM planning and implementation. A systematic review was executed adhering to the PRISMA guidelines to critically appraise the relevant literature from five international and Chinese scholarly databases. Out of 435 initial records, 52 studies were included based on the established inclusion criteria and quality assessment benchmarks. The results revealed that Chinese academic libraries were increasingly integrating international QM models, including ISO 9000, TQM, and EFQM. This integration was driven by six enablers: four external enablers, including the introduction of QM, government support, technological advancements, and quality assessment practices; and two internal enablers, including developmental needs and cultural emphasis on educational excellence. However, these libraries also encountered six challenges in this process: three external challenges, including rapid industrial evolution, deficiency in comprehensive evaluation indicators, and rigorous ISO audits; and three internal challenges, including resistance to change, insufficiency of motivation for improvement, and inequitable distribution of resources. The findings of the current research could deepen the theoretical understanding of the enablers and challenges of QM in academic libraries from both external and internal dimensions. These findings could also support library management, higher education institution leaders, and policymakers in developing sustainable QM strategies for libraries in China and other countries.

Keywords: quality management; academic libraries; China; systematic review



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1. Introduction

With the growing emphasis on quality in a knowledge-centric society, the quality of higher education has emerged as one of the key concerns among international governments and academic communities [1,2]. As integral components of higher education institutions, academic libraries play a crucial role in managing documentary information resources, providing subject support, and conducting academic evaluations [3,4]. Faced with the surge of global digitization and the diversification of higher education needs, academic libraries are challenged to manage information and knowledge resources sustainably and effectively. In light of these trends, academic libraries have worked to develop quality management (QM) strategies mirroring the complexities of the current world [5].

The International Organization for Standardization (ISO) outlines QM in the ISO 9000 series as a process of quality planning, quality assurance, quality control, and quality improvement [6]. QM in academic libraries is defined as a philosophy covering aspects of quality assurance and quality enhancement. This philosophy involves not only compliance with internal and external standards set by higher education institutions but also the overall optimization of library offerings and services. These efforts aim to improve the

quality of education, research, and continuous learning, ultimately enhancing institutional efficiency [7]. The ISO 11620 standard highlights the importance of quality in meeting the needs of users in higher education institutions [8]. Therefore, it is beneficial to seek a suitable quality approach for contemporary academic library services. QM models function as a systematic quality approach that ensures the continuous evaluation and improvement of services, which in turn effectively addresses user needs. Because international quality standards like ISO 9000 continue to influence QM frameworks worldwide, there is a need to examine different QM models. These models usually refer to ISO 9000 and national quality awards [9–11] like the European Foundation for Quality Management (EFQM) Global Award [12,13]. Some studies also view Total Quality Management (TQM) as a QM model or tool [14,15]. Each model offers unique perspectives and methodologies for enhancing quality and operational efficiency in various sectors [16]. In educational contexts such as in China, identifying these QM models within academic libraries aids in understanding the breadth and diversity of QM strategies in use or under consideration.

In China, the speedy development of academic libraries in the last twenty years has mirrored a national emphasis on improving the quality of higher education. The Ministry of Education of the People's Republic of China (MOE) also has reported that the number and scale of academic libraries in the country grew manyfold [17]. This has coincided with the evolution of QM practices as part of its commitment to the quality elevation of educational institutions. These are apparent in efforts that have seen the MOE issue a series of directions and guidelines, such as the Regulations for Libraries in General Higher Education Institutions [18], the Guidance on Promoting the Construction of New Educational Infrastructure and Building a High-Quality Education Support System [19], the Implementation Plan for Evaluation and Assessment of Undergraduate Education in General Higher Education Institutions (2021–2025) [20], and the Highlights of the Work of the Higher Education Department of the Ministry of Education in 2023 [21], all in the effort of improving library services to attain academic excellence. In this respect, very importantly, the Higher Education Evaluation Center of the Ministry of Education (HEEC) was established in 2004, playing the critical evaluative role in the assessment and advocacy of improved QM practices for academic libraries supporting the improvement of higher education quality [22]. Despite these efforts, challenges persist in fully understanding and addressing QM aspects within the context of Chinese academic libraries. Some scholars have argued that the institutional evaluation standards established by the MOE do not adequately reflect the actual state of QM practices within academic libraries [22,23]. A disparity has been noted between the growing demand for high-quality academic libraries and the current state of Chinese institutions [24]. These institutions also have faced challenges in areas such as the quality of digital resources management, service quality, and librarians' awareness of quality, with quality becoming one of the main factors restricting academic libraries from maintaining an indispensable role in China's higher education system [25–28].

Discussions on QM in academic libraries in China, which were initiated by scholars as early as the 1990s [29–31], predate the substantial advancements driven by government policies and directives. These initial conversations set the groundwork for a research area that has experienced heightened attention since the beginning of the 21st century. The subsequent growth in QM research, which coincided with various government initiatives, led to a broader exploration of QM in all library types. Some studies have contributed to this discourse by examining the library QM literature [32,33]. However, most previous Chinese research has concentrated on single aspects of QM, such as concepts, principles, application cases, and evaluation tools [34–37], and has often overlooked comprehensive studies dedicated to academic libraries.

Currently, despite the numerous research efforts on QM, there is an absence of the literature that addresses the types of QM models within the whole Chinese academic library system. This gap extends to research involving systematic reviews, especially those focusing on enabling and hindering factors relating to the planning and implementation of

QM. In fact, even within the global research landscape, where methods like case studies, questionnaires, and interviews have been used to explore QM issues [5,38–40], the absence of systematic reviews is a widespread issue, extending beyond the Chinese context. This observation partly mirrors one of the necessities of this study that arises not only from the gaps lying within the Chinese academic library system but also from its potential to supplement global research on QM. The necessity of this study further emerges from the increasing government and academic attention towards QM in academic libraries. Given this growing focus, a detailed examination of QM models together with the factors facilitating and the challenges impeding their planning and implementation becomes important. This necessity is also highlighted by the problems posed by global digitization and diverse higher education needs. Understanding the strategies applied by academic libraries to enhance the standards of services among these enablers and challenges is important for improving quality in libraries and higher education globally.

Consequently, this research tends to address the gaps identified in the existing literature. The purposes of this research are to synthesize the current state of QM in Chinese academic libraries; to examine types of QM models, as well as the factors facilitating and the challenges impeding their planning and implementation; and to gather evidence to further identify research gaps and future directions. In seeking to achieve the above-stated objectives of this research, the following research questions are identified and systematically reviewed from the relevant available literature:

- RQ 1. What are the characteristics of the included studies related to QM in Chinese academic libraries?
- RQ 2. What types of QM models have been discussed and implemented by Chinese academic libraries?
- RQ 3. What are the enablers for planning and implementing QM in Chinese academic libraries?
- RQ 4. What challenges do Chinese academic libraries encounter in planning and implementing QM?

This paper systematically describes the present scenario of QM in Chinese academic libraries, the types of QM models that have been discussed and implemented, the enablers for planning and implementing QM, and the challenges faced throughout these processes. In order to understand this field and related issues, revisiting and compiling existing research is essential. Against this background, this study utilizes a systematic review method to look for, bring together, and demonstrate the relevant research works. By bridging the identified gaps within the Chinese context, this research not only contributes to local knowledge but also enriches the broader international discourse on QM in academic libraries. From a theoretical standpoint, the outcomes of this paper could deepen the understanding of QM within the context of academic libraries from both external and internal aspects. This contribution could offer a new theoretical perspective for subsequent research on QM in academic libraries, thereby facilitating the advancement of QM theory within this domain. These findings could also provide essential theoretical guidance for the practical implementation of QM models. From a practical and political perspective, the outcomes from the present study are anticipated to offer actionable insights for the further development of relevant and adaptable QM practices within Chinese academic libraries and globally. These insights have the potentiality to guide library management, higher education institution leaders, and policymakers in developing sustainable QM strategies for libraries to enhance the general quality of higher education.

2. Materials and Methods

2.1. Study Design

This research employed a systematic literature review method for a critical evaluation of the available studies in terms of types of QM models, as well as factors facilitating and challenges impeding their planning and implementation in Chinese academic libraries. This study chose to follow the PRISMA guidelines. The PRISMA guidelines are the preferred

reporting framework for the minimal set of evidence-based items reported in systematic reviews and meta-analyses, which include a flow diagram and a checklist [41]. The PRISMA guidelines were selected due to their advantages in enhancing clarity in research questions, setting clear literature standards, ensuring rigorous assessment methods, conducting scientific data analysis, and maintaining objectivity in research findings [41]. This research also followed a procedure that included identification, screening, eligibility assessment, and inclusion of the relevant literature according to the PRISMA flow diagram. This systematic and evidence-based approach is fundamental for aggregating and analyzing the literature that is pertinent to the research questions [41]. This paper also utilized the PRISMA 2020 checklist to guide its structure, covering the title, abstract, objectives, methods, results, and discussion, thereby ensuring a structured and thorough exploration of the field [42,43]. Library and information science (LIS) researchers have recently adopted this methodology for conducting systematic reviews of the scholarly literature [44–47].

2.2. Search Strategy

A comprehensive database search was initiated to locate relevant works for this study. Essential terms were extracted from the research objectives and questions. In order to avoid incompleteness in search terms, search keywords from systematic reviews in different fields but related to QM were also consulted [48–50]. These measures led to the formulation of the search query using logical operators and wildcards, grounded in these identified terms. The search terms were set as follows: (“quality management” OR “quality model*” OR “quality award*”) AND (“Chinese” OR “China” OR “Asia*”) AND (“university librar*” OR “college librar*” OR “research librar*” OR “academic librar*”).

The data for this study came from five databases as follows: Web of Science Collection, Scopus, Library & Information Science Collection (LISC) [51], Library, Information Science & Technology Abstracts (LISTA) [52], and China National Knowledge Infrastructure (CNKI) [53]. Although Web of Science Core Collection and Scopus offer extensive coverage of the international multidisciplinary academic literature, with LISC and LISTA focusing on the international LIS field, these four databases exhibit a deficiency in comprehensive and important research pertinent to the Chinese context. To address this gap, the CNKI database was also included, which was recognized as the most comprehensive Chinese full-text repository that encompasses all core journals in the LIS field within China [54]. Hence, the data sourced from CNKI possessed a high degree of relevance and authority regarding Chinese contexts. The publication dates of the literature were not restricted to ascertain any early research. Search queries were conducted on 30 November 2023, across the five aforementioned databases, and the process was repeated twice on the same day with the purpose of correctly validating the results. The following were the specifics of the search procedure in each database:

1. In the Web of Science Core Collection database, a search was conducted using the topic field, followed by applying filters (document type: article, proceeding paper; Web of Science categories: information science library science; language: English). This search returned 43 results.
2. In the Scopus database, a search was executed with the TITLE-ABS-KEY (title, abstract, and keywords) field, with filters applied (document type: article; subject area: social sciences; language: English, Chinese). This search returned 3 results.
3. In the LISC database, the SUMMARY and TITLE fields were used in an advanced search, with filters applied (document type: article; language: English, Chinese). This search returned 5 results.
4. In the LISTA database, an advanced search was executed using the subject terms field, with filters applied (source type: academic journal; language: English). This search returned 17 results.
5. In the CNKI database, a search was performed utilizing the title, keyword, and abstract fields, with filters applied (document type: academic journal, conference; discipline: library science and digital science; language: Chinese). This search returned 367 results.

Following the execution of these searches, a total of 435 records were collectively gathered from all five databases. All relevant original data were imported into Microsoft Excel (Microsoft Corporation, Redmond, Washington, DC, USA; Version: 16.79.2, Build: 23112723, for Mac) and EndNote (Clarivate Analytics, Philadelphia, PA, USA; Version: 21.2, Build: 21.2.0.19537, for Mac) software after being downloaded on the same day (30 November 2023). This process was replicated twice to guarantee the precision of the data. In the identification stage of data collection, the original records ($n = 435$) were compared, and duplicate records ($n = 19$) were removed. The remaining candidate records ($n = 416$) were then set to undergo further screening and eligibility assessment.

2.3. Inclusion and Exclusion Criteria

To guarantee that the selected studies effectively addressed the proposed research questions, each study was evaluated based on the following inclusion and exclusion criteria. Works identified through the search that conformed to any of the exclusion criteria were excluded from this review. The established criteria for determining which studies were included or excluded are specified as follows:

- The included works were required to have a direct relevance to QM in academic libraries. Works that were completely unrelated to QM or did not explicitly incorporate QM elements were excluded. This process led to the exclusion of 149 records, with 267 records remaining for further evaluation.
- The included works were conducted within the confines of academic libraries. Works that were conducted beyond academic libraries, such as school libraries or public libraries, were excluded. This process led to the exclusion of 73 records, with 194 records remaining for further evaluation.
- The included works focused on the Asian context, with an emphasis on China. Works not pertaining to China were excluded. This process led to the exclusion of 25 records, with 169 records remaining for further evaluation.
- The included works originated from journal articles or conference papers. Any piece that was not a journal article or a conference paper, such as a book or a book chapter, was excluded. This process led to the exclusion of 4 records, with 165 records remaining for further evaluation.
- The included works needed to address at least two research questions. Works that covered only a single research question, such as only model types or enablers and challenges of QM in Chinese academic libraries, were excluded. This process led to the exclusion of 71 records, with 94 records remaining for further evaluation.
- The included studies were required to satisfy the quality assessment criteria. Any study failing to meet these criteria was excluded. This step, which involved a detailed evaluation process that is further explained in the subsequent section, was aimed at ensuring the methodological rigor and reliability of the included studies. This quality assessment led to the exclusion of 42 records, culminating in 52 records being identified for this review.

2.4. Quality Assessment of Selected Studies

This study used the Evidence-Based Librarianship Critical Appraisal Checklist (EBLCAC) [55] for quality assessment, with the objective of reducing potential biases in the results derived from the included literature. This checklist, which is designed for research in evidence-based librarianship, aims to guarantee the rigor of methodologies and the reliability of outcomes, thereby enabling researchers to assess the credibility and practical value of studies more accurately [56]. The checklist is commonly used for evaluating published studies [55]. However, some scholars have pointed that the checklist is primarily designed based on the conventions of the quantitative research paradigm; hence, it may not be particularly adequate for assessing the qualitative aspects of selected studies [57,58]. This perspective implies a potential limitation when applying the checklist, namely, that it may not be ideally suited for examining the qualitative dimensions of research. Although

its applicability may be subject to certain constraints, the academic community still recognizes the checklist as a valuable complementary tool that offers as feasible and as generic a method as possible for evaluating existing research, thus allowing the identification of gaps in the current literature and directions for future research [57,59,60]. In the process of conducting the quality assessment of this systematic review, all assessment decisions were based on publicly available information and strictly adhered to objective criteria and procedures. This quality assessment was carried out according to clear research criteria and research objectives, with the aim of enhancing the transparency and overall quality of this systematic review. Every study underwent a comprehensive evaluation that focused on clarity of research objectives, suitability of methodology, relevance of findings to the data collected, validity of conclusion, and contribution to future research avenues. Only those studies that fulfilled the quality assessment criteria were included to ensure the precision and exhaustiveness of the findings of this review. The five categories that made up the quality assessment checklist were as follows:

- Were the research objectives or research questions precisely specified?
- Was the research methodology appropriate for addressing the research goal?
- Were the research outcomes clearly presented and thoroughly discussed with respect to the data collection?
- Were the research conclusions in alignment with the research objectives or research questions?
- Did the research contribute either to practical value or to suggestions for future lines of inquiry?

Subsequently, a thorough full-text review and quality assessment was conducted using the established quality assessment checklist. The quality assessment was presented in categories of questions with encoded elements. Based on the guidance and recommendations of the EBLCAC checklist [55], each category was designed with three measurement options, with answers coded as Yes (2 points), No (0 points), and Partial (1 point). Here, the Partial rating was interpreted to mean that the situation was not applicable or the information was unclear, which specifically included the following two scenarios: (i) For certain studies, some predetermined questions may be not applicable. For instance, a study that solely used case analysis methods may not involve a data collection process, hence the question discussing data collection outcomes was not applicable to such a study. (ii) For some predetermined questions, certain studies may be rated as unclear due to insufficient detail or because the provided information was not clear enough. For example, a study may mention that its findings had implications for practice or future research but failed to specify what these implications were or did not clearly propose specific directions for future research, thus making the provided information considered unclear. Researchers in the fields of education and LIS also utilize these scoring options to assess the quality of studies to be included in systematic reviews, providing additional support and rationale for the selection of this scoring method [45,47,61,62]. According to the checklist, each article could attain a score from 0 to 10 points. The publications were evaluated against these questions, with assessments based on their full-text content. Although the quality assessment process inevitably involves a subjective component [57], to reduce the risk of bias in quality assessment as much as possible, each publication was annotated for relevant content and assessed twice. In the concluding stage of the assessment, articles achieving a score of 7 points or more, indicating a 70% compliance rate or higher, were identified as meeting the required standard for inclusion. The selection of 70% as the eligibility threshold for inclusion was based on the baseline established by a previous systematic review study on academic libraries using the same quality assessment checklist [47]. In contrast, studies falling short of this benchmark were deemed to have indeterminate validity and were consequently omitted from the final selection to ensure the rigor of the research quality, as guided by the assessment criteria.

Table 1 presents the scores in each assessment category for the 52 studies that adhered to the established quality assessment criteria. In the “Objective clarity” category, these

studies achieved the highest performance with a score of 98 out of 104, which showed their proficiency in clearly defining research objectives. The “Conclusion validity” category saw a score of 85 out of 104, which revealed these studies’ effective performance in justifying and supporting their conclusions. The “Outcome relevance” and “Research contribution” categories scored 83 and 79 out of 104, respectively, which showed the capability of these studies to maintain outcome relevance with regard to data collection and provide certain contributions to the field. Compared to other categories, the “Methodology appropriateness” category achieved a score of 72 out of 104 points, slightly lower but indicative of an adequate standard in the selection and application of research methods. Collectively, these 52 studies accumulated a total of 417 out of a potential 520 points, a score that reflected their performance in conforming to the specified quality assessment criteria and suggested the overall quality and rigor of the selected research.

Table 1. Quality assessment scores of selected works.

Study	Objective Clarity Score (2)	Methodology Appropriateness Score (2)	Outcome Relevance Score (2)	Conclusion Validity Score (2)	Research Contribution Score (2)	Total Score (10)
Li et al., 2023 [63]	2	2	2	1	2	9
Yu, 2022 [64]	1	1	2	1	2	7
Hu et al., 2022 [65]	2	1	1	2	2	8
Ye et al., 2021 [66]	2	2	2	1	2	9
Lin, 2021 [67]	2	1	1	1	2	7
Chen et al., 2021 [68]	2	1	1	2	2	8
Liu & Wu, 2021 [69]	2	1	1	2	1	7
Zhao, 2021 [70]	2	1	1	2	1	7
He et al., 2020 [71]	2	2	1	1	2	8
Sun & Song, 2020 [72]	2	1	1	2	2	8
Lin & Wang, 2019 [73]	2	2	2	2	2	10
Xie & Zou, 2019 [74]	2	2	2	1	2	9
Zhang, 2019 [75]	1	1	2	2	1	7
Chen, 2019 [76]	2	1	1	1	2	7
Li, 2019 [77]	2	1	1	1	2	7
Li et al., 2019 [78]	2	2	2	2	1	9
Qi, 2018 [79]	2	2	2	2	2	10
Zhou & Wu, 2018 [80]	2	2	2	2	2	10
Shu, 2018 [81]	2	1	1	2	1	7
Zhou, 2017 [82]	1	1	1	2	2	7
Jin, 2017 [83]	2	1	1	2	1	7
Xu, 2016 [84]	2	1	1	2	1	7
Tang & Chen, 2015 [85]	2	2	2	2	2	10
Wang, 2015 [86]	2	2	1	1	1	7
Song & Yang, 2014 [87]	2	1	2	1	1	7
Zhao et al., 2014 [88]	2	2	2	1	1	8
Wang, 2014 [89]	2	1	2	1	1	7
Dai & Song, 2013 [90]	2	2	2	2	1	9
Wang & Shen, 2013 [91]	2	1	2	1	1	7
Wang, 2012 [92]	2	1	1	2	1	7
Wei-Chi, 2012 [93]	1	1	1	2	2	7
Xiong, 2012 [94]	2	1	2	1	2	8
Yang, 2011 [95]	2	1	1	1	2	7
Liu, 2011 [96]	2	2	2	2	1	9
Chen, 2010 [97]	2	1	1	2	2	8
Lu, 2010 [98]	2	2	2	1	1	8
Zhong et al., 2008 [99]	2	2	2	2	1	9
Li, 2008 [100]	2	2	2	2	2	10
Hu, 2008 [101]	2	1	2	2	0	7
Pan & Guo, 2008 [102]	2	2	2	2	1	9
Li et al., 2007 [103]	2	1	2	2	2	9

Table 1. Cont.

Study	Objective Clarity Score (2)	Methodology Appropriateness Score (2)	Outcome Relevance Score (2)	Conclusion Validity Score (2)	Research Contribution Score (2)	Total Score (10)
Wei et al., 2007 [104]	2	1	2	2	1	8
Zhan, 2007 [105]	2	1	1	1	2	7
Yuan, 2006 [106]	2	2	2	1	1	8
Hui, 2006 [107]	2	1	2	2	0	7
Zhang & Deng, 2006 [108]	2	1	1	2	2	8
Zhan & Zhang, 2006 [109]	2	2	1	2	2	9
Fan, 2003 [110]	1	1	2	2	2	8
Wang, 2003 [111]	2	1	2	1	2	8
Jia, 2002 [112]	1	1	2	2	1	7
Gu et al., 2001 [113]	2	2	2	2	2	10
Na, 2001 [114]	2	1	2	2	2	9
Gained quality score by category	98	72	83	85	79	417
Expected maximum quality score by category	104	104	104	104	104	520

2.5. Study Selection

A total of 435 records were initially gathered from the searches. The bibliographic details of these records were imported into Microsoft Excel and EndNote software. In the identification phase, 19 duplicate records were excluded, yielding 416 articles. In the screening phase, according to the title and abstract review, 165 records were selected for more in-depth analysis. In the eligibility phase, after full-text review, 94 articles were selected for further quality assessment. Out of these, 52 articles, which scored 70% or higher, met all inclusion criteria and were thus ultimately included in this review, as shown in Figure 1.

2.6. Data Extraction and Synthesis of Results

To ensure systematic data extraction and efficient synthesis of results, Microsoft Excel software was adopted as the data processing tool. For the 52 included studies, an extensive data extraction process was undertaken. This process involved the collection of basic information like titles, names of authors, years of publication, types of articles, source journals or conferences, and geographical regions of the studies. Following this, methodological information including research methods, target audiences, and sample sizes was extracted by reviewing abstracts and full texts. Additionally, to address thoroughly the remaining research questions, a thematic analysis [115] of the entire texts was conducted to extract detailed information about the types of QM models, enablers, and challenges in the planning and implementation of QM. Thereafter, all collected information was systematically coded, categorized, and organized in Microsoft Excel spreadsheets based on pertinent research questions and themes. This organization was aimed at enhancing the clarity of the research findings and facilitating a comprehensive analysis.

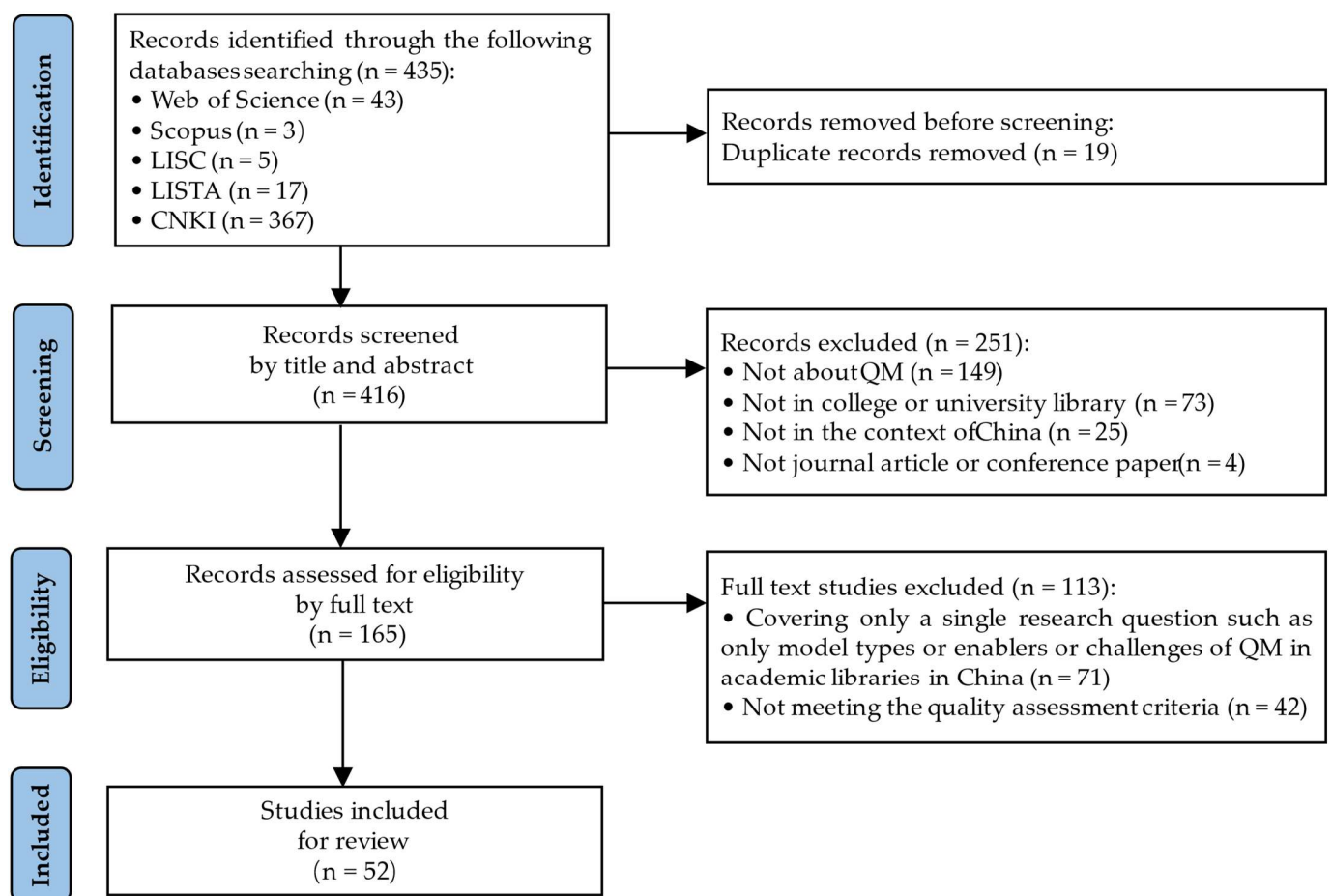


Figure 1. Four-phase flow diagram as outlined in the PRISMA guideline.

3. Results

3.1. Characteristics of the Included Studies

The characteristics of the included works are detailed in Table 2. Regarding the distribution of publication years, the 52 included studies were published between 2001 and 2023. Among these, the year 2019 featured the highest number of publications (n = 6, 11.54%), succeeded by 2021 (n = 5, 9.62%). As for the types and sources of the works, of the 52 studies, 51 originated from 41 peer-reviewed journals and one was a conference paper. Most journals (n = 35, 67.31%) were represented only once. An additional six journals appeared multiple times. Of these, four journals, *Research on Library Science*, *Library Tribune*, *Information Research*, and *Journal of Information*, published the highest number of articles, with three articles each, together accounting for 23.08% of total publications. In terms of the number of authors per article, 23 (44.23%) articles were collaboratively authored by two or more individuals. With respect to the geographic distribution of articles across regions in China, the southern region had the highest number of publications (n = 22, 42.31%), next came the northern region (n = 17, 32.69%), the eastern region (n = 8, 15.38%), and the western region with the fewest (n = 5, 9.62%).

Concerning the methodology of the selected studies, 48 (92.31%) studies utilized a single research method, and 4 (7.69%) works employed mixed methods. Of the single methods, a case study was the most prevalent (n = 21, 40.38%), followed by theoretical analysis (n = 19, 36.54%), a questionnaire (n = 6, 11.54%), and an unstructured interview (n = 2, 3.85%). For those studies adopting mixed methods, two (3.85%) articles each combined a website survey with documentary analysis. A total of 33 (63.46%) articles specified the target populations and objects, which included academic libraries, librarians, faculty, students, and library websites. A total of 12 (23.08%) studies reported the sample sizes,

varying from a minimum of 3 to a maximum of 517. Overall, the methodology revealed a holistic and multidimensional perspective because it involved quantitative and qualitative methods together with mixed methods. This array of methodologies afforded a comprehensive framework for examining QM issues within the context of Chinese academic libraries.

Table 2. Overview of the included studies.

No	Year	Authors	Region of China	Method	Target Population	Sample Size	Sources
1	2023	Li et al.	Northern	Case study	Northeast Agricultural University Library	-	[63]
2	2022	Yu	Southern	Theoretical analysis	-	-	[64]
3	2022	Hu et al.	Northern	Case study	Xi'an Jiaotong University Library	-	[65]
4	2021	Ye et al.	Eastern	Unstructured interview	Three librarians from three university libraries	n = 3	[66]
5	2021	Lin	Southern	Theoretical analysis	-	-	[67]
6	2021	Chen et al.	Northern	Case study	Xi'an Jiaotong University Library	-	[68]
7	2021	Liu & Wu	Northern	Theoretical analysis	-	-	[69]
8	2021	Zhao	Northern	Theoretical analysis	-	-	[70]
9	2020	He et al.	Western	Case study and unstructured interview	Sichuan Water Conservancy Vocational College Library; seven librarians from seven college libraries in Sichuan Province	n = 7	[71]
10	2020	Sun & Song	Southern	Theoretical analysis	-	-	[72]
11	2019	Lin & Wang	Southern	Case study	Academic libraries in Hainan Province	-	[73]
12	2019	Xie & Zou	Northern	Questionnaire and unstructured interview	Faculty and students in Baoji University of Arts and Sciences	n = 135	[74]
13	2019	Zhang	Northern	Theoretical analysis	-	-	[75]
14	2019	Chen	Northern	Theoretical analysis	-	-	[76]
15	2019	Li	Southern	Theoretical analysis	-	-	[77]
16	2019	Li et al.	Eastern	Questionnaire	Faculty and students in Nanjing Institute of Technology	n = 93	[78]
17	2018	Qi	Northern	Questionnaire	Faculty and students in Shanxi University	n = 462	[79]
18	2018	Zhou & Wu	Western	Website survey and documentary analysis	The websites of academic libraries in Mainland China	n = 22	[80]
19	2018	Shu	Northern	Theoretical analysis	-	-	[81]
20	2017	Zhou	Western	Case study	Tianfu College of Southwestern University of Finance and Economics Library	-	[82]
21	2017	Jin	Eastern	Theoretical analysis	-	-	[83]
22	2016	Xu	Northern	Case study	Shanxi Technology and Business College Library	-	[84]
23	2015	Tang & Chen	Southern	Website survey and documentary analysis	The websites of academic libraries in Taiwan Province	n = 17	[85]
24	2015	Wang	Southern	Questionnaire	Faculty and students in Guangdong Peizheng College	n = 200	[86]
25	2014	Song & Yang	Western	Theoretical analysis	-	-	[87]
26	2014	Zhao et al.	Eastern	Case study	Nanjing University of Aeronautics and Astronautics Library	-	[88]
27	2014	Wang	Southern	Case study	Guangdong Peizheng College Library	-	[89]
28	2013	Dai & Song	Southern	Unstructured interview	Eight librarians from eight academic libraries	n = 8	[90]
29	2013	Wang & Shen	Eastern	Theoretical analysis	-	-	[91]
30	2012	Wang	Northern	Theoretical analysis	-	-	[92]
31	2012	Wei-Chi	Southern	Theoretical analysis	-	-	[93]
32	2012	Xiong	Southern	Theoretical analysis	-	-	[94]
33	2011	Yang	Southern	Case study	Zengcheng College of South China Normal University Library	-	[95]
34	2011	Liu	Eastern	Questionnaire	Faculty and students in Hezhou University	n = 150	[96]
35	2010	Chen	Eastern	Case study	Jiangsu Maritime Vocational and Technical College Library	-	[97]
36	2010	Lu	Southern	Case study	Hainan University Library	-	[98]
37	2008	Zhong et al.	Southern	Questionnaire	Faculty and students in Hainan University	n = 460	[99]
38	2008	Li	Southern	Theoretical analysis	-	-	[100]
39	2008	Hu	Eastern	Case study	Wenzhou University Library	-	[101]
40	2008	Pan & Guo	Southern	Case study	Wuhan University of Technology Library	-	[102]
41	2007	Li et al.	Southern	Case study	Hainan University Library	-	[103]

Table 2. Cont.

No	Year	Authors	Region of China	Method	Target Population	Sample Size	Sources
42	2007	Wei et al.	Northern	Case study	Institute of Disaster Prevention Library	-	[104]
43	2007	Zhan	Southern	Case study	Guangdong Ocean University Library	-	[105]
44	2006	Yuan	Western	Case study	Chongqing University of Arts and Sciences Library	-	[106]
45	2006	Hui	Southern	Case study	Guangdong Ocean University Library	-	[107]
46	2006	Zhang & Deng	Southern	Case study	Hainan University Library	-	[108]
47	2006	Zhan & Zhang	Southern	Questionnaire	Faculty and students in Hainan University	n = 517	[109]
48	2003	Fan	Southern	Theoretical analysis	-	-	[110]
49	2003	Wang	Northern	Theoretical analysis	-	-	[111]
50	2002	Jia	Northern	Theoretical analysis	-	-	[112]
51	2001	Gu et al.	Northern	Case study	Xi'an Jiaotong University Library	-	[113]
52	2001	Na	Northern	Case study	Dalian Maritime University Library	-	[114]

3.2. QM Models Discussed and Implemented by Chinese Academic Libraries

QM models discussed and implemented by Chinese academic libraries were addressed in 44 (84.62%) of the 52 included works in this systematic review. As shown in Table 3, these QM models included ISO 9000, TQM, and EFQM.

The ISO 9000 model was the most frequently researched and implemented QM model (n = 33, 63.46%). The ISO 9000 series standards have aided libraries in establishing and maintaining effective QM systems and provide a framework for further QM system certification [90,111]. Recognizing its significance in QM, some academic libraries have incorporated ISO 9000 standards into their management systems since the late 1990s [110,114]. Some of these libraries have not only adopted the ISO 9000 model but also have participated in the ISO 9001 QM system certification [80,85,116]. However, it is noteworthy that some scholars have expressed concerns about the ISO 9000 model, particularly its potential delays in incorporating updates, which may have impacted its ability to keep pace with the rapid advancements in digital information technology [72].

TQM was another notably discussed and implemented QM model (n = 16, 30.77%). TQM, a management philosophy centered on continuous service improvement and satisfying the needs of both internal and external users [112], has been explored and adopted by several academic libraries. These institutions have developed specific QM approaches by integrating TQM principles with their institutional realities [63,88,95,113]. Some researchers in the field of LIS have also utilized the TQM concept to guide the development and implementation of evaluation schemes for libraries in higher education institutions [74].

In addition, the EFQM model was less frequently mentioned (n = 1, 1.92%). As a tool providing a more comprehensive quality assessment framework, EFQM has held potential reference value for exploring QM methods adaptable to the needs of Chinese academic libraries [94].

Table 3. QM models discussed and implemented by Chinese academic libraries.

Models	Study No. in Table 2	Number	Proportion
ISO 9000	4, 5, 7, 9, 10, 11, 13, 18, 20, 22, 23, 24, 27, 28, 29, 30, 31, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 52	33	63.46%
TQM	1, 12, 13, 14, 16, 19, 21, 26, 31, 33, 38, 39, 46, 47, 50, 51	16	30.77%
EFQM	32	1	1.92%

3.3. Enablers for Planning and Implementing QM in Chinese Academic Libraries

Enablers for planning and implementing QM in Chinese academic libraries were identified in 50 (96.15%) of the 52 included works in this review. As presented in Table 4, these enablers are grouped into two categories: external environmental support (n = 46, 88.46%) and internal environmental driver (n = 23, 44.23%).

Regarding external environmental support, the introduction of international QM models was identified as the most important enabler ($n = 32$, 61.54%). The adoption of globally recognized standards such as ISO 9000 and TQM has been essential in providing a scientifically structured QM framework for these libraries [108]. This strategy has aligned these institutions with international QM benchmarks, thereby enhancing the standardization and optimization of their management practices [83,102]. Government macro-policy guidance and financial support constituted another key external facilitator ($n = 25$, 48.08%). By prioritizing information technology infrastructure and advanced educational resources, these initiatives have provided essential financial and technical support for technological upgrades and QM enhancements in these libraries [77,89,101]. The role of technological advancement and digital transformation in driving QM was also highlighted ($n = 15$, 28.85%). Developments in technologies such as big data analytics and cloud computing have opened new avenues for these libraries to innovate services and optimize user experiences [77]. The integration of these technologies has enabled libraries to analyze user behavior more precisely, predict service demands with greater accuracy, and offer personalized information services [66,75]. The implementation of quality assessment in higher education reform was also recognized as a factor promoting QM ($n = 14$, 26.92%). These reforms and continuous assessments have provided these libraries with opportunities for self-examination of management efficiency and operational processes. Such self-examination, to a certain extent, can promote enhanced focus on and improvements in areas such as resource allocation, technology adoption, and management practices [68,93,100].

In terms of internal environment driver, the intrinsic developmental need of the academic libraries was pinpointed as the key enabler ($n = 22$, 42.31%). Confronting increasingly varied user demands and the imperative for service innovation, these libraries have been actively adapting their management approaches [91,103,109]. Such adaptation has involved integrating new QM models, enhancing user experience, and improving information access convenience [79,92]. The emphasis on educational excellence within Chinese cultural traditions was also considered to be a driving force for planning and implementing QM ($n = 2$, 3.85%). This cultural element has inspired academic libraries to integrate quality improvement into their core operations and align their QM strategies with the overarching goals of higher education [69,81].

Table 4. Enablers for planning and implementing QM in Chinese academic libraries.

Categories	Enablers	Study No. in Table 2	Number	Proportion
External environmental support	Introduction of international QM models	4, 7, 9, 10, 11, 16, 18, 20, 21, 23, 28, 29, 30, 31, 32, 33, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 47, 49, 50, 51, 52	32	61.54%
	Government macro-policy guidance and financial support	2, 3, 6, 7, 8, 9, 11, 14, 15, 18, 19, 20, 21, 24, 26, 27, 28, 32, 33, 35, 36, 37, 39, 42, 44	25	48.08%
	Technological advancement and digital transformation	1, 2, 4, 6, 7, 8, 13, 15, 21, 24, 25, 26, 27, 28, 44	15	28.85%
	Implementation of quality assessment in higher education reform	4, 6, 11, 12, 18, 19, 26, 28, 31, 32, 37, 38, 42, 51	14	26.92%
Internal environmental driver	Intrinsic developmental need of the academic libraries	1, 4, 5, 7, 8, 13, 17, 20, 24, 27, 29, 30, 34, 35, 37, 39, 40, 41, 45, 47, 50, 52	22	42.31%
	Emphasis on educational excellence within Chinese cultural traditions	7, 19	2	3.85%

3.4. Challenges Encountered by Chinese Academic Libraries in Planning and Implementing QM

Challenges experienced by Chinese academic libraries in the planning and implementation of QM were reported in 39 (75.00%) of the 52 included studies in this review. As shown in Table 5, these challenges are divided into two categories: external environmental obstacle ($n = 32$, 61.54%) and internal environmental negativity ($n = 26$, 50.00%).

Concerning the external environmental obstacle, the difficulty in adapting to rapid evolution in industry and technology was identified as the foremost challenge ($n = 20$, 38.46%). These libraries have faced challenges in adapting their QM systems to the industry's evolving dynamics [63,69,106] and in responding to rapid technological advancements [64,70,76]. The deficiency in comprehensive evaluation indicators was recognized as another challenge to the effective implementation of QM ($n = 15$, 28.85%). Although the evaluation criteria established by the HEEC offered some value, they were criticized for their excessive emphasis on hardware facilities. This focus has often led to the neglect of service quality and user experience in these libraries, potentially creating a situation where disproportionate attention to hardware upgrades detracts from necessary improvements in these important areas [65,78,86,104,107]. The inadequacy in preparation for the rigorous audits and continuous assessment conducted by ISO certification bodies was also identified as a challenge ($n = 6$, 11.54%). Particularly for libraries either preparing for or currently undergoing ISO certification, the necessity to undertake steps in various areas has posed an unavoidable challenge. These steps include the standardization of documentation, the establishment of a QM system, comprehensive staff training, and cultural shifts within the institution. Such measures are essential not only for meeting but also for maintaining the stringent standards of ISO certification, reflecting the continuous effort required to comply with ISO's rigorous criteria [80,98,105].

Table 5. Challenges encountered by Chinese academic libraries in planning and implementing QM.

Categories	Challenges	Study No. in Table 2	Number	Proportion
External environmental obstacle	Difficulty in adapting to rapid evolution in industry and technology	1, 2, 6, 7, 8, 9, 14, 21, 22, 24, 25, 26, 27, 28, 37, 39, 42, 44, 45, 46	20	38.46%
	Deficiency in comprehensive evaluation indicators	1, 2, 3, 4, 9, 11, 14, 16, 20, 24, 27, 32, 38, 42, 45	15	28.85%
	Inadequate preparation for rigorous audits and continuous assessment by ISO certification bodies	18, 35, 36, 43, 46, 49	6	11.54%
Internal environmental negativity	Resistance to change among library staff	2, 3, 9, 13, 15, 17, 20, 22, 23, 24, 25, 26, 27, 34, 35, 42, 43, 45, 48, 49, 50	21	40.38%
	Insufficiency of intrinsic motivation for continuous improvement within academic libraries	2, 9, 15, 25, 26, 28, 43, 48, 49	9	17.31%
	Inequitable distribution of resources	3, 8, 9, 20, 22, 37, 39, 45	8	15.38%

In addition, internal environmental negativity emerged as another major challenge. The resistance to change among library staff was highlighted as the biggest internal obstacle ($n = 21$, 40.38%). During the period of QM system transformation, library staff often exhibited anxiety, distrust, and misunderstanding [71,84,89,105]. These attitudes of resistance could be attributed to several factors, including lack of awareness regarding quality and service [87,96], disparities in quality knowledge and skills [64,85], unfamiliarity with evolving technologies and modern management practices [77], concerns about the uncertainty brought by change [88,107], insufficient quality training [65], lack of guidance and experience from professionals [79,82,86], and inadequate communication between library management and staff members [75,97]. The insufficiency of intrinsic motivation for continuous improvement within academic libraries was also noted as an internal challenge ($n = 9$, 17.31%). The tendency to overlook enhancements in service and management has been partly attributed to these libraries' affiliations with universities or colleges [87]. These institutions have often benefited from stable government funding and a guaranteed readership, which has led to a reduced focus on improving efficiency [71,77]. This situation highlights a potential issue where the financial stability and assured user base of these libraries may result in less motivation for proactive improvements. The inequitable distribution of resources was recognized as another internal challenge ($n = 8$, 15.38%). This

disparity has been evident not only across various universities and colleges but also among different regions. It has manifested both in the allocation of financial, technological, human, and collection resources, and equally in the provision of training and development opportunities [65,82,84,99]. Such an imbalance in resource distribution may lead to differences in service quality and user experience across academic libraries [70].

4. Discussion

4.1. RQ 1. *What Are the Characteristics of the Included Studies Related to QM in Chinese Academic Libraries?*

This research offers a systematic review of QM issues within Chinese academic libraries. Through literature retrieval and screening, a total of 52 pertinent articles aligned with the central theme and research questions were identified. The range of publication years from 2001 to 2023, along with an increasing trend in publications, demonstrates a sustained focus and growing research interest in QM within academic libraries in China. However, there is still limited recent research available on global publication trends in this field, indicating a need for further studies to strengthen this aspect.

Regional disparities were observed in the geographic analysis of studies. This distribution pattern, indicative of regional influences on the research conducted, calls for more detailed investigations to identify the causes of these disparities. An earlier study on the global distribution of ISO 9001 model adoption illustrates how regional factors can influence QM practices [117]. Such exploration could, to some extent, help to gain insights into QM practices and specific challenges faced by academic libraries in different regions.

The included studies primarily applied case studies and theoretical analyses as their research methods. Case studies can provide detailed examples and deep insights into QM within academic libraries, clarifying practices in these contexts. Nonetheless, it should be emphasized that the applicability of these study results may not extend across all contexts, urging a prudent approach when extrapolating these insights for varied regions or conditions [118]. Over-reliance on theoretical analysis may limit the understanding of practical issues. In contrast, research conducted in other countries, like a study in the southwestern region of Nigeria, employed a combination of questionnaires, interviews, and focus groups to investigate QM implementation in academic libraries to develop a framework of quality improvement [5]. This diversity of approaches highlights the use of various research methods to capture the value of a wider range of views and opinions. Future research in this field could benefit from integrating multiple research methods like semi-structured interviews to acquire a comprehensive understanding and address the challenges of QM in academic libraries. Such an approach could preserve the depth of case studies and the conceptual insights of theoretical analysis, while also embracing the practical insights offered by empirical research methods.

In addition, these studies predominantly focused on the Chinese academic libraries themselves, librarians, and users, positioning them as the primary subjects of research. However, it should be acknowledged that there are potential limitations within this scope, as the perspectives of other relevant stakeholders, like library directors and professionals, may not have been fully explored. Their participation is vital for decision-making and policy formulation, and their insights and support are valuable for advancing library development [119]. A study from Argentina has already investigated academic library directors' perceptions of QM issues to provide actionable suggestions for improving quality [120], highlighting the value of including the perspectives of directors in research. Therefore, future studies should broaden the scope of inquiry to examine QM issues more comprehensively in these libraries, which incorporate the perspectives and experiences of various stakeholders.

4.2. RQ 2. *What Types of QM Models Have Been Discussed and Implemented by Chinese Academic Libraries?*

The exploration of different QM models in academic libraries highlights their commitment to meeting established quality benchmarks and the systematic standardization of

processes. The current study found ISO 9000 and TQM as the predominant QM models in the Chinese context. This finding is consistent with previous studies from other countries, which similarly identified ISO 9000 [120] and TQM [5,121] as the principal QM models discussed and implemented in academic library settings. This trend reflects a widespread preference for models that have demonstrated effectiveness in enhancing service quality and operational efficiency.

In contrast, EFQM received less focus within the Chinese context, primarily featuring in theoretical discussions without substantial evidence of its practical application. This finding corresponds to a recent study, which reported that EFQM has yet to be broadly adopted within the educational domain [122]. Despite this, case studies in Europe [13] and Asia [123] have demonstrated the feasibility of EFQM within academic libraries. This observation suggests the necessity for further research to investigate the practical applications of EFQM and the factors influencing its adoption in academic library settings.

Furthermore, the majority of the included studies concentrated on analyzing a single QM model or its implementation in a single academic library. Although this focus has offered valuable insights through specific cases, it may not fully capture the actual situation of adopting QM models across the academic library sector. A notable gap in the current literature is the lack of quantitative studies that comprehensively examine the adoption and execution of QM models throughout Chinese academic libraries. This finding contrasts with previous research from other countries, where quantitative analyses have been conducted to investigate and evaluate the adoption of QM models in their academic library systems [120, 124,125]. Thus, future research should engage in extensive quantitative investigations to determine the prevalence of QM models across Chinese academic libraries collectively and to evaluate the impacts of these models on library operations and service quality.

4.3. RQ 3. What Are the Enablers for Planning and Implementing QM in Chinese Academic Libraries?

A systematic analysis of the included studies reveals that both external environmental support and internal environmental driver interact to facilitate the planning and implementation of QM in academic libraries. The most prominent external enabler identified was the introduction of international QM models. This emphasis on proven models aligns with the outcome from a study conducted on academic libraries in Argentina, which found the adoption of verified QM systems as the most important factor for their selection based on the positive experiences associated with these models [120]. This finding of the current study not only corroborates previous research results but also reveals a strategic orientation towards quality assurance practices that are grounded in evidence-based successes, as evidenced by the global preference for these proven QM models. Government macro-policy guidance and financial support were another external enabler. This finding shares similarities with an earlier study conducted on university libraries in Malaysia, where one of the motivations for seeking QM certification was the mandatory requirement from the government [38]. Surprisingly, research conducted in other countries has not frequently cited government financial support as a driver. This variation may be due to differing governmental priorities, the availability of alternative funding sources, or varying levels of government involvement in higher education across different national contexts. Technological advancement and digital transformation were also recognized as external enablers in this review. Although these aspects were rarely mentioned as direct facilitators for QM initiatives in earlier research, potentially due to the initial focus on traditional management practices over technological integration, recent research has highlighted the role of digital transformation in advancing academic libraries [126]. However, its facilitating impact on QM practices has been less explicitly addressed. This finding further shows that digital advancements could also serve to advance QM within academic libraries, which suggests the potential of digital technology to act as a catalyst for both innovation and quality enhancement in library services. The implementation of quality assessment in higher education reform was identified as another external enabler in this study. This recognition

aligns with previous international research, which found the role of higher education quality assessment agencies as a driver for QM initiatives [120]. This finding, to some extent, further indicates the universal importance of structured quality assessments in fostering a culture of continuous improvement and accountability within academic libraries globally.

In addition, the intrinsic developmental needs of academic libraries were identified as the most important internal enabler in this review. This finding is in line with outcomes from the international literature, which found the comprehensive improvement of information services [40], enhancement of communication and collaboration between libraries [5,40], elevation of the libraries' quality image [38], and supportive leadership styles [5,120] as key components for internal development. These elements collectively contribute to libraries' ongoing efforts towards excellence in service quality and operational efficiency, which reflect a global consensus on the importance of developmental need in driving QM initiatives. What is surprising is that, in contrast to previous international research, this review identified that the emphasis on educational excellence within Chinese cultural traditions acted as an internal enabler for QM. This finding further indicates that incorporating local cultural values could increase the focus on QM and offers insights for future research to assess cultural impacts on QM practices more broadly.

It is noteworthy that the included studies in this review generally mentioned enablers for planning and implementing QM within their introductory or background sections, without a systematic or quantitative analysis. In contrast, the relevant international literature has utilized mixed research methods to thoroughly investigate these enablers, including the reasons for selecting a QM model and factors facilitating its implementation [40,120]. Future studies should employ quantitative approaches to explore the enablers for QM. This approach aims to gain a more intuitive understanding of how external and internal enablers affect the quality of Chinese academic library management.

4.4. RQ 4. What Challenges do Chinese Academic Libraries Encounter in Planning and Implementing QM?

The complexity of QM has brought multiple challenges to its planning and implementation in academic libraries. The included studies identified challenges faced by these Chinese institutions in both external and internal environments. Externally, these libraries confronted the deficiency in comprehensive evaluation indicators, as well as the inadequate preparation for rigorous audits and continuous assessment by ISO certification bodies. These findings corroborate those of previous relevant international studies, which pointed out deficiencies in management indicators [120] and the heavy audit workload required by ISO standards [39] as external obstacles. However, the finding of the difficulty in adapting to rapid evolution in industry and technology, which was identified as the most important external challenge in this review, has not previously been described specifically in international contexts. This challenge has commonly been discussed for broader topics, such as the technological challenges academic libraries face within higher education environments [127], without an explicit link to QM. A possible explanation for this discrepancy may be the varied pace at which technological changes are recognized as a factor within the academic libraries' QM processes. Historically, these changes may not have been seen as directly impacting the core areas of QM, hence their less frequent association with QM challenges. This variation suggests a growing acknowledgment of technology's role in shaping QM practices in academic libraries and highlights the need for QM frameworks to exhibit greater flexibility, adaptability, and sustainability in response to technological evolutions. This finding of the current study not only refines the existing literature by indicating the unique challenge associated with adapting QM processes to industrial and technological advances but also offers useful feedback relevant to the current era for improving QM work.

Internally, resistance to change among library staff, insufficiency of intrinsic motivation for continuous improvement within academic libraries, and inequitable distribution of resources were identified as three major internal challenges in this review. These findings

correspond to previous international research, which discovered similar challenges, including negative attitude towards change [5,38,120], career development issues [5], leadership commitment issues [39,120,125], lack of motivational factors for change [120], and resource limitations in funding [5,40,120,125] and infrastructure [40,125]. These findings not only affirm earlier insights from other countries but also further show the continuous influence of these internal challenges on the development of QM initiatives in academic libraries. This consistency observed across various studies reflects a widespread and sustained agreement on the necessity of addressing these barriers within the global academic community.

Therefore, it is essential to fully consider these challenges and adopt targeted strategies to overcome them to ensure effective implementation and continuous improvement of QM in academic libraries. Some included studies have proposed solutions such as developing flexible QM strategies [68], establishing cooperative relationships with technology providers and other libraries to share resources and knowledge and jointly address industry challenges [64], proactively adopting and implementing best practices from advanced international QM models [69,83], developing and implementing comprehensive assessment systems that include user feedback and QM system [63,73,94], enhancing internal audit mechanisms and ensuring complete documentation of all operational procedures [80,105], providing training and professional development courses [64], establishing proactive reward programs [97], fostering a culture of innovation and ongoing enhancement [77], building collaborative resource-sharing networks [70], and optimizing internal resource management [82,84].

However, the challenges faced differ across various contexts, which are influenced by regional distinctions and the nature of the institution. For different types of academic libraries, a lack of comprehensive resources has emerged as the biggest challenge, particularly for college libraries when compared to university libraries [71]. Hence, applying a universal solution for addressing these challenges is impractical and tailored approaches should be adopted according to specific circumstances.

In addition, during the planning and execution of QM in academic libraries, the interplay between internal and external challenges influences QM strategies. For instance, the internal resistance to change among library staff may intensify due to the external pressure of rapid technological advancements. The rapid evolution of information technology not only necessitates updates and refinements in the library's QM system but also poses challenges for staff in adapting to new technologies and workflows. Lacking effective training and comprehensive understanding, staff may develop a sense of unease and resistance to these changes. Consequently, a holistic and multidimensional approach is essential to further assess and validate these challenges. Through such comprehensive analysis, the key factors impeding the implementation of QM could be more accurately identified, thereby enabling the formulation of more effective and sustainable strategies and measures.

5. Conclusions and Future Research

5.1. Conclusions

This study, adhering to the PRISMA guidelines for systematic reviews, examined the current state of QM in Chinese academic libraries, the QM models discussed and implemented, the enablers for planning and implementing QM, and the challenges they faced. A total of 52 studies were included. The methods included qualitative, quantitative, and mixed methods, which exhibited a holistic and multidimensional perspective. Numerous included studies, which employed a case study and theoretical analysis, revealed the essential role of QM models, including ISO 9001, TQM, and EFQM, in enhancing the QM framework and practices within Chinese academic libraries. Through the systematic review, six enablers for the planning and implementation of QM in Chinese academic libraries were identified. Of these, four were external enablers, including the introduction of international QM models, government macro-policy guidance and financial support, technological advancement and digital transformation, and the implementation of quality assessment in higher education reform. The two remaining enablers were internal, rep-

resented by the intrinsic developmental need of the academic libraries and the emphasis on educational excellence within Chinese cultural traditions. Additionally, this review identified six challenges encountered by these institutions during this process. Of these, three external challenges included difficulty in adapting to rapid evolution in industry and technology, deficiency in comprehensive evaluation indicators, and inadequate preparation for rigorous audits and continuous assessment by ISO certification bodies. The three internal challenges involved resistance to change among library staff, insufficiency of intrinsic motivation for continuous improvement within academic libraries, and inequitable distribution of resources.

The findings of this systematic review clearly indicate that the internal and external environments involved in planning and implementing QM in academic libraries necessitate a strategic impetus. Through adopting actionable strategies and supportive policies, libraries could improve the quality and efficiency of their services. These improvements could foster the sustainable development of academic institutions and help the pursuit of excellence in higher education.

5.2. Implication for Theory

This systematic review, based on existing research, presented a detailed examination of the current status of QM in Chinese academic libraries. It examined previous studies on the models, enablers, and challenges of QM in these institutions, comparing them with relevant international research. This review could enrich the theoretical understanding of both supportive and obstructive factors influencing QM in academic libraries. The findings of the current study highlight the critical need to integrate both internal and external, as well as international and local considerations when discussing and implementing QM models. Considering the current situation of Chinese academic libraries incorporating international quality management models such as ISO 9000, TQM, and EFQM, it is essential to account for government support, technological advancements, quality assessment in higher education, intrinsic development needs, and cultural context. This insight is important for the theoretical development of QM, emphasizing the adaptability and flexibility of QM theories across various cultures and higher education systems. Furthermore, this study identified a set of theoretical strategies within the existing literature to address challenges faced by Chinese academic libraries, which included technological transformation, evaluation indicators, ISO continuity assessment, library staff competencies, organizational culture, and resource allocation. This approach could not only augment the theoretical foundation of QM but also offer theoretical support and guidance for effectively navigating these challenges. Overall, the results of the current study could furnish novel theoretical perspectives and frameworks for future investigations into the factors influencing QM in academic libraries, thus contributing to the evolution of QM theory in this field. Future research could benefit from including comparative studies on the drivers and barriers of QM in different types of academic libraries, such as university libraries and college libraries, which represent institutions under different higher education contexts. Such research has the potential to further promote the theoretical development of QM by uncovering patterns and principles applicable across varied higher educational settings.

5.3. Implication for Practice

This systematic review offers insights into the current state of QM in Chinese academic libraries. The findings of this study confirm that there is an increasing alignment of these libraries with international QM models, including ISO 9000, TQM, and EFQM. Top management and professionals in these libraries should integrate these models with local specificities to develop customized QM strategies. In this process, the integration of quality assessment within higher education reform, coupled with an emphasis on educational excellence inherent in Chinese culture, plays a promotive role in enhancing library QM. Effectively utilizing government policy and financial support, along with proactively adapting to rapid technological advancements, is indispensable for strengthening the quality

of services and infrastructure. In response to the challenges encountered in QM planning and implementation, top management should prioritize the continuous professional development of library staff by providing extensive training programs on QM principles, user service, and change management. Such training initiatives are instrumental in facilitating staff adaptation to evolving QM strategies and management systems. To enrich the team's professional expertise, it is advisable to engage external experts and consultants for specialized QM knowledge and support. Additionally, top management should further develop strategies to foster a culture centered on service quality, emphasize internal motivation, encourage staff participation in decision-making, and ensure accountability in QM processes. Building on this, library staff should also enhance their awareness of quality services, improve management skills, and actively participate in the transformation of the existing QM system.

5.4. Implication for Policy

This systematic review provides insights for policymakers, decision-makers in higher education institutions, and library directors on the development of QM policies and quality evaluation standards. In addressing the challenges, particularly the issue of inequitable distribution of resources, they should adhere to scientific principles and collaboratively develop a series of standardized, comprehensive evaluation indicators. These indicators should be designed to thoroughly assess the quality of library services, resources, and management practices. Considering the rapid evolution in industry and technology, they should encourage collaboration between academic libraries, higher education institutions, regulatory agencies, and QM certification bodies. This cross-institutional collaboration plays an important role in sharing best QM practices, developing joint QM training programs, and fostering a conducive environment, both internally and externally, for the effective implementation of QM. Additionally, they should persist in supporting research in the field of QM within academic libraries, promote the integration and utilization of diverse contemporary QM models, and aid in the effective execution of change management strategies. By employing these measures, academic libraries could cultivate a dynamic and innovative atmosphere, enhance service quality, and meet evolving educational needs, which include sustainable information access, stronger research support, and efficient digital adaptation.

5.5. Limitations of the Study and Future Research

This systematic review analyzed 52 selected studies. Despite utilizing strict measures to reduce the possibility of bias in the selection and analysis of the literature, several limitations were still evident, which open avenues for future research: (i) The search strategy used keywords pertaining to QM. In order to ensure the completeness of search terms as much as possible, this study extracted relevant search terms according to the research purposes and research questions and referred to the search terms used in systematic reviews concerning QM in different fields. These keywords were widely selected in the search process to enlarge the literature coverage. Despite the above measures, other possible keywords may still have been overlooked. Thus, future studies of systematic reviews have to include more search terms about QM, such as quality assurance, quality control, quality policy, quality planning, quality improvement, and process improvement, when formulating search strategies. This strategy could further ensure the integrity of search terms and the comprehensiveness and reliability of systematic reviews. (ii) Access to only five databases restricted the study's literature range because of limitations in accessing databases. This limited the research's coverage of the extensive literature, especially in databases that may contain relevant but not widely indexed studies. (iii) This work only included journal articles and conference papers to ensure the reliability and broad acceptance of the systematic review by the academic community. Due to database access limitations and difficulties in obtaining comprehensive gray literature in China, gray literature-like reports and white papers were excluded from this study. This exclusion likely

overlooked significant, albeit non-peer-reviewed or unpublished materials, which might have offered additional insights and data. To enhance the study's comprehensiveness, future research should aim to incorporate such gray literature, contingent on resource availability, thus fostering a more thorough and balanced understanding of the impacts of various QM models in academic libraries. (iv) Restricting the literature review to English and Chinese academic publications may have neglected pertinent studies in other languages, attributed to linguistic proficiency barriers. (v) Although the study applied a widely recognized quality assessment checklist for evidence-based library and information research, offering detailed scoring criteria to enhance transparency and repeatability and to mitigate bias from subjectivity, eliminating bias entirely was not feasible. This inherent subjectivity could affect the literature quality evaluation, potentially introducing bias into the research findings. Additionally, given the EBLCAC's inclination towards the paradigm issue of quantitative analysis, caution should be exercised regarding the generalizability of the results of this study in both theoretical and practical applications. Future research should consider utilizing various types of quality assessment checklists to further enhance the objectivity and rigor of assessment in systematic reviews. This includes using the EBLCAC for quantitative research and adopting the Critical Appraisal Skills Programme (CASP) checklist for qualitative research [128,129]. (vi) Despite the use of systematic tools and methods for literature content extraction and synthesis, the interpretation of this process may have been influenced by the researchers' personal preferences. This situation may lead to the omission of some important perspectives or information, affecting the completeness of the research findings.

Furthermore, this work has pinpointed gaps in the current literature regarding QM in academic libraries, which also indicate possible directions for future research. There is a need to incorporate the perspectives of library management and professionals by applying semi-structured interviews and questionnaires to investigate and evaluate the reasons for choosing different QM models, their practical benefits, and to explore effective strategies for addressing challenges during implementation. Such an investigation could advance sustainable QM optimization in academic libraries within the higher education sector.

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