Construction and Development of the Evaluation System Framework for University Libraries: Postprint

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Abstract

[目的/意义]Evaluation is an effective management instrument for supervising the fulfillment of library functions and realizing library values; however, university libraries have yet to establish a periodic and operable evaluation system, which has become a major obstacle hindering their development.[方法/过程]Based on the "Regulations for Libraries of Regular Institutions of Higher Education" and guided by CIPP evaluation theory, the "Comprehensive Evaluation" analytical framework theory, management control theory, and the "Four Generations of Evaluation" developmental stage theory, this study proposes constructing a "five-in-one" evaluation institutional system for university libraries encompassing library self-evaluation, policy evaluation, educational evaluation, accreditation evaluation, and monitoring evaluation. Employing literature research and comparative research methods, it elaborates on and systematically reviews the connotations and developmental status of each evaluation institution, and examines their values, functions, and existing problems within the system.[结果/结论]The construction of a "five-in-one" evaluation institutional system for university libraries demonstrates scientific validity and necessity. Recommendations include strengthening basic theoretical research and practical exploration of accreditation evaluation, restarting policy evaluation, and seeking new data statistical methods and technologies to perfect monitoring evaluation.

Full Text

Construction and Development of an Academic Library Evaluation System Framework

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Abstract

[**Purpose/Significance**] Evaluation serves as an effective management tool to supervise library function fulfillment and realize library value. However, academic libraries have yet to form a periodic and highly operable evaluation system, which has become a major obstacle to their development. [**Method/Process**] Guided by the *Regulations of the Library of Ordinary Colleges and Universities*, CIPP evaluation theory, the "Full Evaluation" analytical framework, management control theory, and the "four-generation evaluation" development stage theory, this paper proposes constructing a "five-in-one" evaluation system for academic libraries comprising library self-evaluation, policy evaluation, educational evaluation, certification evaluation, and monitoring evaluation. Using literature research and comparative research methods, this study explains and reviews the connotation and development status of each evaluation system, and discusses their value, function, and existing problems within the overall system. [**Result/Conclusion**] The proposed "five-in-one" evaluation system is scientifically sound and necessary. It is recommended to strengthen basic theoretical research and practical exploration of certification evaluation, restart policy evaluation, and seek new data statistical methods and technologies to improve monitoring evaluation.

Classification Number: G250

Keywords: Academic library; Self-evaluation; Policy evaluation; Educational evaluation; Certification evaluation; Monitoring evaluation

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Evaluation is a common practice for ensuring service quality across all types of libraries and serves as an effective management tool to supervise library function fulfillment and realize library value. At the end of 2017, the sixth national public library evaluation and grading organized by the Library Society of China reconstructed the standard system and introduced an information-based evaluation platform, achieving the evaluation goals of "promoting investment, management, and construction through evaluation" [1]. The formal implementation of the *Public Library Law of the People's Republic of China* in 2018 provided legal guarantees at the national level for public library evaluation. Consequently, China's public library evaluation has formed a relatively complete evaluation and grading standard, gradually becoming institutionalized and standardized. However, as one of the three major types of libraries, academic libraries have not yet formed a standardized and operable evaluation system, which has become a major obstacle to their current development.

Academic libraries have entered a stage of connotative development focused on improving service effectiveness. Occasional, isolated, one-time evaluation activities can no longer meet the new demands of academic library development. These activities lack effective organization and implementation, resulting in uneven progress and effectiveness across evaluation projects. They are char-

acterized by non-normalcy, disorder, and insufficient authority, thereby limiting their role in promoting academic library development. Under advanced evaluation concepts, top-level design is needed to integrate existing evaluation projects, innovate evaluation models, and establish evaluation mechanisms. A service-effectiveness-based evaluation system for academic libraries should be constructed, employing multiple evaluation forms with multi-stakeholder collaboration and combining internal and external efforts to supervise and guarantee the fulfillment of basic library functions.

Currently applicable evaluation projects for academic libraries mainly include policy evaluations organized by education authorities at all levels according to the *Regulations of the Library of Ordinary Colleges and Universities*, performance evaluations (including comprehensive and single-item evaluations) spontaneously organized by individual university libraries, literature guarantee and service evaluations in various educational evaluation projects with multi-party participation, and monitoring evaluations based on the academic library factual database. Although all these projects apply to academic libraries, they differ in evaluation objects, content, purposes, evaluation subjects, main functions, reference standards, evaluation methods, procedures, and conclusion publication. They lack connections and communication with each other. An evaluation system must be built to integrate these projects and improve their value and authority.

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1 Framework Design Basis for the Academic Library "Five-in-One" Evaluation System

1.1 Policy Basis for Academic Library Evaluation

The *Regulations of the Library of Ordinary Colleges and Universities* (hereinafter referred to as the *Regulations*) is the programmatic document for the construction and development of academic libraries. According to Article 47 of the revised version (Jiao Gao [2015] No. 14), "The guiding expert organization for library and information work in higher education institutions under the Ministry of Education may formulate specific provisions on the construction and service aspects of various types of academic libraries based on these Regulations, and guide the development and evaluation of various types of academic libraries." Evaluating the development of various types of academic libraries is an important means to promote the implementation of the *Regulations*. The *Regulations* belong to the third level of the library legal system—ministerial regulations of the State Council [2]—and although not the highest-level national law, they still have legal effect; non-compliance or violation can be held accountable [3].

1.2 Educational Environment for Academic Library Evaluation

Libraries are internal organizational units of universities, established and managed autonomously by the institutions. Academic library evaluation essentially serves educational evaluation. Only by earnestly studying educational evaluation policies and accurately grasping the connotation and implementation mechanisms of the educational evaluation system can academic library evaluation be targeted and effectively support the achievement of institutional evaluation goals.

China's higher education evaluation practice began with pilot programs in engineering education and has since achieved significant results. In November 1985, the Ministry of Education issued the *Notice on Launching Research and Pilot Work on Higher Education Evaluation*, and the State Education Commission began to deploy and implement higher engineering education evaluation, marking the official start of China's higher education evaluation pilot work. In 2003, the first national undergraduate teaching level evaluation was led and organized by the Ministry of Education. By 2008, 589 universities had undergone evaluation. The evaluation was subsequently suspended due to issues with evaluation indicators. After the release of a new evaluation scheme in 2011, a new round of evaluation began. During the "Twelfth Five-Year Plan" period, 168 newly established undergraduate institutions underwent qualification evaluation, and more than 50 higher education institutions underwent audit evaluation [4]. Currently, China's higher education is undergoing profound transformation focused on connotative construction [5]. In September 2018, at the National Education Conference, General Secretary Xi Jinping pointed out the need to deepen education system reform and reverse unscientific education evaluation orientation. Studying and implementing the requirements of the National Education Conference and constructing a modern higher education evaluation system with Chinese characteristics has become a major issue in deepening higher education reform, promoting quality improvement, and achieving the goal of building a modern higher education powerhouse [6]. This issue has made significant progress, and China has constructed a "five-in-one" modern higher education evaluation system architecture, which organically combines multiple subjects and forms including educational data routine monitoring, institutional self-evaluation, institutional classification evaluation (including qualification evaluation and audit evaluation), professional certification and evaluation, and substantive equivalent international evaluation. Academic library evaluation shares common goals and value orientation with higher education evaluation, and the mature evaluation system of higher education provides valuable reference for the architecture and design of academic library evaluation systems.

1.3 Theoretical Basis for Academic Library Evaluation System Design

The main theoretical foundations for designing the current academic library evaluation system are CIPP evaluation theory, the "Full Evaluation" analytical framework, management control theory, and the "four-generation evaluation"

development stage theory.

CIPP evaluation theory emphasizes a whole-process evaluation model comprising context evaluation, input evaluation, process evaluation, and product evaluation. Context evaluation is essentially diagnostic evaluation, input evaluation is utility evaluation, process evaluation is formative evaluation, and product evaluation is summative evaluation [7]. Through these four types of evaluation, academic libraries can be assessed at different stages from development goal selection, development plan revision, plan implementation, to service effectiveness, making the entire evaluation activity systematic and covering every aspect of library management and service. This transforms the monitoring system into a decision-support tool for management decision-makers, meeting the systematic requirements of academic library evaluation system construction [8].

The "Full Evaluation" analytical framework was proposed by Professor Ye Jiyuan of Nanjing University in 2010, including six major elements and three dimensions [9]. This theory has matured and been widely used not only for journal quality evaluation but also for book evaluation, website evaluation, library collection quality evaluation, and innovation evaluation [10]. The construction of academic library evaluation systems can draw on the "Full Evaluation" framework, balancing formal evaluation, content evaluation, and utility evaluation, and considering multiple aspects and angles in selecting evaluation subjects, objects, and purposes to meet the requirements of multiple forms and multiple subjects.

Management control theory is the foundational theory for organizational performance management [11]. According to the timing of control, it can be divided into preliminary control, concurrent control, and post-control; according to the opportunity of control, it can be divided into timely control and compliance control; according to the scope of control, it can be divided into external control and internal control; according to the nature of control, it can be divided into punitive control and incentive control. Academic library evaluation needs to run through the entire library management process, involving all time stages from preliminary control to concurrent and post-control. It must supervise the implementation of the *Regulations*, which is compliance control. It combines internal self-evaluation with external third-party evaluation, which is the combination of external and internal control. The purpose of evaluation is to urge academic library construction and operation to return to the track stipulated by the *Regulations*, which is punitive (accountability) control. The design of academic library evaluation systems must include preliminary, concurrent, and post-control.

The "four-generation evaluation" theory divides evaluation history into four development stages: measurement, description, judgment, and negotiation. The measurement stage is characterized by data collection; the description stage by identifying project or policy characteristics; the judgment stage by evaluating quality based on standards or actual effects; and the negotiation stage by emphasizing value pluralism and stakeholder participation [12]. Current academic

library evaluation systems exhibit characteristics of multiple evaluation stages: routine data monitoring has distinct measurement stage features; library performance evaluation (including comprehensive and single-item evaluation) has description and judgment stage features. However, there is currently no evaluation system reflecting negotiation stage characteristics—emphasizing stakeholder participation and library value pluralism while focusing on the degree to which libraries meet user needs or potential demands. The construction of academic library evaluation systems needs to fully embody negotiation stage characteristics by designing and implementing certification evaluation systems.

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2 The Academic Library "Five-in-One" Evaluation System

2.1 Evaluation Objectives

According to the *Regulations*, academic libraries are the literature and information resource centers of their institutions, academic organizations serving talent cultivation and scientific research. Their main tasks are to provide literature and information guarantees for teaching, research, and discipline construction, establish literature and information service systems to facilitate service delivery, and actively participate in institutional talent cultivation. Academic library service effectiveness refers to the realization degree of academic libraries' educational and information service functions, that is, the supporting role and impact of library professional services on institutions achieving their expected development goals [13]. The "five-in-one" evaluation system for academic libraries aims to ensure and improve library service effectiveness, which is a response to the implementation of the *Regulations* and an inevitable requirement for the survival and development of academic libraries.

2.2 Evaluation Concepts

User-centered means evaluating whether libraries meet users' diverse needs, considering all types of users—not only traditional faculty and student readers but also all service recipients such as disciplines and majors. Infrastructure construction, literature resource development, staff team building, user service project design, and organizational structure setup should all be oriented toward meeting user needs.

Service-effectiveness-oriented means focusing on both the richness of service content, diversity of service methods, convenience of service access, and timeliness of service response; and on the degree of participation in talent cultivation, satisfaction of diverse user needs, impact of social services, and contribution to campus culture, comprehensively measuring the achievement of academic library functions.

Continuous improvement means academic libraries must have clear understanding and access to information about their own problems, have clear and

feasible improvement mechanisms and measures, track the effects of improvements, and collect information for the next stage of improvement. This is a cyclical enhancement mechanism feeding back into library quality. Evaluation is for improvement, not for proof [14], and continuous improvement runs through the entire academic library evaluation system.

2.3 Evaluation Systems

The "five-in-one" academic library evaluation system is an organic whole that highlights the developmental function of evaluation, integrates diagnostic, utility, formative, and summative evaluations, and fulfills all functions of inspection, evaluation, supervision, and guidance, involving pre-control, concurrent control, and post-control. This organically unifies five evaluation systems into one system. The evaluation system has common evaluation objectives, works under common evaluation concepts, and achieves multiple innovations in evaluation objects, subjects, methods, and main functions, making academic library evaluation activities rule-based and improving their value and authority, thereby promoting the development of academic libraries.

The "five-in-one" evaluation system design organically combines academic library self-evaluation, policy evaluation organized by education authorities, certification evaluation led by the industry, educational evaluation implemented by users and social third parties, and normalized monitoring evaluation, complementing each other. The system innovation is mainly reflected in four aspects: (1) Diversified evaluation objects—evaluating both the overall library situation and specific projects, both service effectiveness and routine operation status. (2) Diversified evaluation subjects—including education authorities, library industry experts, social third-party organizations, library managers, and users. (3) Diversified evaluation methods—including both periodic evaluation and routine data monitoring. (4) Diversified main functions—including diagnostic functions to identify development shortcomings and evaluation functions to identify strengths and characteristics. A comparison of the implementation mechanisms of the "five-in-one" evaluation projects is shown in Table 1 .

Table 1 Comparison of Implementation Mechanisms for the "Five-in-One" Academic Library Evaluation Projects

Evaluation Type	Evaluation Object	Evaluation Subject	Evaluation Method	Main Function
Library Self-Evaluation	Library overall	Library leadership/users	Flexible and autonomous	Identify shortcomings

Evaluation Type	Evaluation Object	Evaluation Subject	Evaluation Method	Main Function
Policy Evaluation	Library overall	Education authorities	Periodic evaluation	Find strengths, meet educational evaluation index requirements
Educational Evaluation	Library service effectiveness	Educational evaluation experts/users/social third-party	Coordinated with educational evaluation cycles	Provide evidence
Certification Evaluation	Library overall	Library industry experts/social third-party	Library application + social third-party approval + evaluation	Access, identify characteristics
Monitoring Evaluation	Library operation status	Education authorities	Routine data monitoring	Routine data monitoring

2.3.1 Library Self-Evaluation Library self-evaluation evolved from single-item evaluation. Single-item evaluation assesses specific facilities, resources, or services of a library or a group of libraries, including library buildings, service spaces, informatization construction, resources, service quality, and user education. Evaluation subjects can be the library itself, education authorities, or social third-party evaluation organizations. However, single-item evaluation lacks national policy support, has not formed a unified and industry-recognized evaluation index system, and has not developed into a periodic evaluation system. Therefore, single-item evaluation has remained at the theoretical research level, with few practical implementations. Based on this, it is necessary to clarify that libraries are both the responsible subjects and objects of single-item evaluation. According to management and operational needs, libraries should conduct self-inspections against the evaluation standards within the evaluation system, identify gaps, recognize their own development advantages and disadvantages, promptly address potential crises, and seize development opportunities.

Library self-evaluation establishes the central position of libraries in evaluation work and strengthens their responsibility in library service quality assurance. It does not set evaluation cycles and can be carried out flexibly and autonomously according to library development needs or other evaluation project requirements.

2.3.2 Policy Evaluation Policy evaluation is a comprehensive evaluation of academic libraries based on the *Regulations of the Library of Ordinary Colleges and Universities*, constructing evaluation index systems to assess the overall level of academic libraries, identify their current status, and find gaps from required standards to guide library construction.

So far, China has conducted only one national academic library policy evaluation. After the 1987 *Regulations* were issued, the Ministry of Education formulated the *Opinions on Conducting Evaluation of Academic Libraries in Ordinary Colleges and Universities* in 1991, proposing a national academic library evaluation during the "Eighth Five-Year Plan" period (1991-1995) to inspect implementation of the *Regulations*. This evaluation lasted three years (March 1990 to January 1993), and subsequently, university libraries under ministries such as the Ministry of Coal Industry also carried out evaluation work [15]. In February 2002, the *Regulations (Revised Draft)* was issued. According to Article 39, "Education administrative departments at all levels shall inspect and evaluate the implementation of these Regulations by higher education institutions." In February 2003, the Ministry of Education issued the *Evaluation Indicators for Academic Libraries in Ordinary Colleges and Universities (Draft for Comments)*, but no nationwide policy evaluation was organized afterward. On December 31, 2015, the Ministry of Education revised the *Regulations* again, but so far has not organized the revision of evaluation indicators. Major documents, policies, and evaluation activities for academic library evaluation since 1985 are shown in Table 2 .

Table 2 Major Documents/Policies and Evaluation Activities for Academic Library Evaluation Since 1985

Time (Year)	Major Documents/Policies	Major Evaluation Activities
1985	*Decision of the Central Committee of the Communist Party of China on the Reform of the Education System*	Deployment of academic library evaluation work under the influence of higher education evaluation
1987	*Regulations of the Library of Ordinary Colleges and Universities* issued	Continuous evaluation work in regional academic libraries, with local implementation measures formulated
1990	National Academic Library Evaluation Seminar held	
1991	*Opinions on Conducting Evaluation of Academic Libraries in Ordinary Colleges and Universities*	Proposed a national academic library evaluation during the "Eighth Five-Year Plan" (1991-1995) to inspect implementation of the *Regulations*

Time (Year)	Major Documents/Policies	Major Evaluation Activities
1995-2000	—	Comprehensive evaluation work basically stopped
2001	National Academic Library Evaluation Work and Evaluation Index System Research Symposium	Discussion on evaluation issues including library automation/networking, literature resource construction, literature processing, information services, and operational conditions
2002	*Regulations of the Library of Ordinary Colleges and Universities (Revised Draft)*	Article 39 stipulates that education administrative departments at all levels shall inspect and evaluate implementation of these Regulations
2003	*Evaluation Indicators for Academic Libraries in Ordinary Colleges and Universities (Draft)*	Single-item evaluation exploration: operational conditions, reader services, literature acquisition, information functions, and computer applications
2003	*Evaluation Indicators for Academic Libraries in Ordinary Colleges and Universities (Draft for Comments)*	
2015	*Regulations of the Library of Ordinary Colleges and Universities*	

2.3.3 Educational Evaluation Educational evaluation in the "five-in-one" system refers to academic libraries' participation in various educational evaluation projects to meet relevant indicator requirements. Educational evaluation is an important means of higher education quality assurance and has significant guiding effects on higher education development [16]. Its purpose is to issue "passports" for university operation qualifications (such as qualification evaluation) or "entry permits" indicating that educational quality has reached certain standards (such as certification evaluation). Regardless of evaluation type, literature resource guarantee and service are important evaluation indicators, and the library is the responsible department for providing evidence. Participating in various types of higher education evaluation to prove libraries' support for discipline construction and contribution to student cultivation has become the

normal work of academic libraries. Although not directly evaluating libraries, educational evaluation directly accepts library service effectiveness. Evaluation indicator requirements for libraries in various educational evaluation projects are shown in Table 3 .

Table 3 Evaluation Indicator Requirements for Libraries in Educational Evaluation Projects

Classification	Evaluation Type	Indicator Description
Institutional Evaluation	Undergraduate Teaching Evaluation	Per-student book collection and annual per-student book acquisition meet national operational condition requirements; library materials (including e-books) meet basic teaching requirements with high utilization rates
Professional Certification & Evaluation	Engineering Education Professional Certification	Library resources can meet student learning and faculty teaching/research needs; resource management is standardized with high sharing degree
	ABET International Engineering Education Professional Certification	Adequacy of library's technical collections for program and faculty needs; Faculty can request library to order books or subscribe to resources; Adequacy of library system for locating and accessing electronic information; Other library needs related to program requirements

2.3.4 Certification Evaluation Certification evaluation refers to the process where, under the current trend of classified development in higher education, libraries autonomously set quality objectives and conduct quality management according to their institution's level, type, and development orientation, and obtain certain labels, identities, or certifications through quality assessment by social third parties. The national standard *Information and Documentation—Library Performance Indicators (GB/T 29182-2012)* [17], officially promulgated and implemented in June 2013, embodies certification evaluation concepts through its classified evaluation approach. The *Regulations*

(Jiao Gao [2015] No. 14) clearly stipulate that the guiding expert organization for library and information work in higher education institutions may formulate specific provisions on construction and service aspects for various types of academic libraries based on these Regulations, and guide their development and evaluation. Certification evaluation reflects the concept of classified evaluation and the orientation of diversified development of academic libraries.

Given the unbalanced development of academic libraries across different regions, types, and levels, certification evaluation should be organized according to the principle of "whoever meets standards first, applies first, gets certified first, and benefits first." Libraries apply for participation voluntarily. Although not administratively mandatory, certification evaluation is an important tool for strengthening quality connotation construction. It serves identification, reflection, advisory, critical, and intermediary functions, and can help libraries obtain certain labels, identities, or certifications, thereby enhancing their visibility and reputation and providing important conditions for securing resources from their institutions.

2.3.5 Monitoring Evaluation Academic library monitoring evaluation relies on modern information technology to continuously collect and analyze relevant data, objectively presenting the development status of academic libraries to provide reliable basis for multiple stakeholders to make correct judgments and decisions [18]. The monitoring evaluation system for academic libraries was first initiated by the former National Academic Library Work Committee in 1981 and has continuously developed and improved. Currently, the guiding expert organization for library and information work in higher education institutions under the Ministry of Education serves as the evaluation subject. Based on the academic library factual database, it uses information technology for data collection, integration, mining, analysis, and visualization to monitor the operation status of national academic libraries, provide scientific judgment and decision support for library development, and simultaneously provide data support for other evaluation projects. The evaluation cycle is annual, and conclusions are published irregularly in the form of *Blue Book of Academic Library Development*. The development stages of academic library statistical work are shown in Table 4 [19].

Table 4 Development Stages of Academic Library Statistical Work

Time (Year)	Value/Significance	Initiating Department/Leader
1981	Sent paper *Survey Form for Higher Education Institution Libraries* to collect basic data covering dozens of institutions	Beginning of China's academic library statistical work; National Academic Library Work Committee

Time (Year)	Value/Significance	Initiating Department/Leader
1986-1989	Statistical work suspended	
1990-1997	Sent paper *Statistical Form for Ordinary Higher Education Institution Libraries* (977 institutions in 1990, about one-third of national total)	Proposed first relatively complete statistical index system; officially named "Higher Education Institution Library Factual Database"; National Academic Library Work Committee
1998-2000	Statistical work suspended	
2001-2004	Online version of Higher Education Institution Library Factual Database officially launched in 2001	Opened new era of statistical work; first-generation statistical index system; Guiding Expert Organization for Library and Information Work in Higher Education Institutions
2005-2009	Published *Guidelines for Measurement of Digital Resources in Higher Education Institution Libraries (2004)* and *Evaluation Indicators and Methods for Academic Libraries (2003)*	Published and implemented second-generation statistical index system; Guiding Expert Organization for Library and Information Work in Higher Education Institutions
2009-2015	Third revision of factual database index system	Published and implemented third-generation statistical index system; Guiding Expert Organization for Library and Information Work in Higher Education Institutions

3 Discussion and Recommendations

3.1 Library Self-Evaluation and Certification Evaluation

Library self-evaluation and certification evaluation are new concepts proposed based on the development needs of academic libraries, drawing on China's "five-in-one" higher education evaluation system and the public library evaluation and grading system. Although both are new concepts, library self-evaluation evolved from single-item evaluation, which is characterized by strong target-

ing, concentration, and comparability, with low input and high efficiency [20]. These characteristics also apply to academic library self-evaluation. Library self-evaluation does not require a unified evaluation index system or strict evaluation procedures; it is organized autonomously according to the library's own development needs.

Certification evaluation is a completely new concept. Assuming its necessity and scientific validity, several issues require focused attention:

First, basic theoretical research on certification evaluation should be conducted to explain its connotation, explore theoretical foundations, and seek relevant policy support and legal guarantees.

Second, determining library classification standards is the foundation, prerequisite, focus, and difficulty of academic library certification evaluation. As secondary departments of universities, academic library classification standards should be based on university classification standards and schemes. Due to different main tasks and classification bases, different classification standards have been formed in different periods, such as "Project 985" universities, "Project 211" institutions, and ordinary undergraduate institutions based on key construction policies; discipline-oriented, program-oriented, and vocational institutions based on talent cultivation types and program orientations [21]. In 2015, with the introduction of the *Overall Plan for Coordinating the Construction of World-Class Universities and First-Class Disciplines* and the announcement of 42 first-class universities and 95 first-class discipline construction institutions, China's higher education was further divided into "Double First-Class" and non-"Double First-Class" institutions. Which classification standard and scheme to adopt should be determined through sufficient demonstration based on the value orientation of academic library certification evaluation. Only after classification standards are determined can theoretical research and practical exploration be conducted on evaluation subjects, objects, mechanisms, and index system design for different types of libraries.

Third, pilot implementation should be gradually promoted through small-scale trials. The academic library certification evaluation should be designed from a holistic perspective, constructing a workflow framework from pre-evaluation, during-evaluation, and post-evaluation stages (see Figure 2 [Figure 2: see original paper]) to gradually improve relevant methods and theories in practice. The pre-evaluation stage is the library self-evaluation stage, including studying evaluation policies, analyzing evaluation indicators, developing library evaluation plans reflecting institutional characteristics, collecting and analyzing data according to the plans, and writing self-evaluation reports. The during-evaluation stage is the expert evaluation stage, including on-site reporting and promotion, expert site visits, and interviews. The post-evaluation stage is the library summary and construction stage, where improvements are made based on deficiencies and gaps exposed during evaluation, and services recognized by experts and the institution are further optimized and promoted in preparation for the next round of evaluation. All data collected and analyzed throughout the process

should be consistent with data submitted to the Higher Education Institution Library Factual Database.

3.2 Policy Evaluation and Educational Evaluation

China's academic library policy evaluation has been closely bundled with higher education evaluation. A review of policy documents reveals that since 1993, educational evaluation has replaced policy evaluation as the only comprehensive evaluation of academic libraries organized by education authorities or social third-party organizations. The main reason why academic library policy evaluation has not formed a periodic evaluation system is the lack of theoretical basis: libraries are internal organizational units of universities, the *Regulations* are only administrative normative documents rather than national laws, and policy evaluation is merely an internal library system evaluation lacking legal basis and authority [3]. Additionally, problems existing in the first national policy evaluation, such as unscientific evaluation index system design [22-23], unreasonable evaluation subject structure (dominated by administrative officials with insufficient participation of library experts and readers), and evaluation results becoming mere formalities, have not been effectively resolved to date.

Educational evaluation is widely applied in higher education practice and has achieved remarkable results. However, due to insufficient institutional recognition of the importance of library work and libraries' own lack of understanding, attention, and action regarding educational evaluation projects, libraries have remained invisible in educational evaluation projects, aiming only to avoid becoming a drag on institutional performance and providing statistical tables, thus missing opportunities to actively participate in core teaching work. This lack of attention and action has also led to seriously lagging theoretical research on this topic. In terms of research objects, studies on academic library educational evaluation projects remain in the teaching level evaluation era of the early 21st century, with no research on different evaluation systems and projects under the new "five-in-one" higher education evaluation system. No studies on qualification evaluation, audit evaluation, or teaching basic state databases were found in CSSCI and Peking University Core source journals, with only one study on library support for an ABET international engineering education professional certification framework in a Shanghai Jiao Tong University program [24]. In terms of research perspective, most studies focus on positive [25-28] or negative [27] value assessments of educational evaluation's impact on academic library development, or on optimization of library evaluation indicators from the perspective of library development [29-31], with few studies from the perspective of educational evaluation on how libraries can serve their institutions' success in educational evaluation. In terms of research content, major findings were concentrated more than a decade ago, with very few recent studies. Meanwhile, China's higher education policy environment and evaluation system have undergone tremendous changes, and academic library resources, management, systems, culture, and services have also changed significantly to adapt to higher

education policies and modern information technology development, making new research on academic library educational evaluation necessary and urgent.

Although policy evaluation and educational evaluation are closely related, they differ significantly, and educational evaluation cannot completely replace policy evaluation. First, their purposes differ. Policy evaluation aims to detect the current construction level of libraries, focusing not only on resource evaluation but also on library operation and management, emphasizing function fulfillment and task completion to identify gaps from evaluation indicators and thereby strengthen construction guidance and promote library development. Educational evaluation aims to find evidence that disciplines and programs can receive adequate resource guarantees and good services, focusing more on evaluating library service effectiveness and the contribution of libraries' educational and information service functions to achieving institutional development goals and student success or graduate competency attainment [32]. Second, their evaluation foci differ. Policy evaluation is library-centered, while educational evaluation is discipline- and student-centered. The former emphasizes what libraries own and resource utilization efficiency; the latter emphasizes what disciplines and each student own and whether resources and services meet teaching and research needs.

Therefore, although educational evaluation has some compensatory effect for policy evaluation, it cannot completely replace it. It is necessary to improve relevant policies and legal guarantees, revise evaluation index systems, and restart policy evaluation as soon as possible. Additionally, awareness of the importance of academic library educational evaluation should be strengthened: achieving good evaluation results or high evaluation levels brings institutions good reputation, more educational resources, better student employment prospects, and higher-quality student recruitment. During educational evaluation, secondary departments that can contribute to better evaluation results can secure more resources and greater development advantages in internal resource allocation. Thus, strengthening theoretical research and practical exploration of academic library educational evaluation is of great value for library survival and development.

3.3 Monitoring Evaluation

The core of academic library monitoring evaluation is data statistical work. Data statistics are the foundation of academic library service effectiveness evaluation because service quality needs to be reflected through accumulated service quantity, and only the combination of both can objectively reflect service effectiveness. Under the "five-in-one" evaluation system, especially with the promulgation and implementation of the Education Informatization 2.0 Action Plan and the continuous advancement of smart library construction, academic library data statistical work has entered a new era. Statistical objects not only exhibit typical big data characteristics—massive volume, high generation speed, diverse sources, and multiple types—but also show the following trends and features:

(1) Data sources have shifted from single-source to multi-source data fusion; (2) The starting point of data statistics has shifted from library-centered to user-centered; (3) Statistical units have shifted from coarse-grained "total collection" statistics to fine-grained statistics by program and individual user; (4) Statistical dimensions have shifted from single-dimension simple statistics of collections, circulation, and readers to multi-dimensional cross-statistics for solving complex problems; (5) The purpose of data statistics has shifted from recording the present to inspiring thinking and supporting decision-making. In short, academic library data statistical work is no longer traditional record-keeping; simply measuring, describing, and judging overall collection quantities can no longer meet evaluation requirements. Instead, it should emphasize user-centered analysis and value revelation of statistical data. This requires continuously updating concepts of academic library data statistical work, seeking new statistical methods and technologies, and continuously improving monitoring evaluation procedures and functions.

References

[1] Ke Ping, Liu Xuqing, Zou Jinhui. Promoting construction, management, and use through evaluation: Review and reflection on the sixth national public library evaluation and grading[J]. Library and Information, 2018(1): 37-48.

[2] Ke Ping. Legalization of library undertakings: Environment, models, and paths[J]. Library and Information Science Research, 2019, 12(1): 5-14.

[3] Yan Jinwei, Zhu Qiang. Summary of the revision of the Regulations of the Library of Ordinary Colleges and Universities[J]. Journal of Academic Libraries, 2016, 34(2): 9-13.

[4] Wang Hong. Institutional evaluation in China's higher education governance: Theory and empirics[M]. Beijing: Educational Science Publishing House, 2017: 31-46.

[5] Qi Zhanyong, Li Ying. Evolution logic and rational choice of China's higher education policy in the 40 years of reform and opening-up[J]. Higher Education Research, 2018, 39(4): 16-22.

[6] He Xiuchao. Exploring a modern higher education evaluation system with Chinese characteristics to comprehensively improve talent cultivation quality[J]. China Higher Education Research, 2018(10): 1-5.

[7] Xiao Yuanjun. Analysis of CIPP educational evaluation model[J]. Education Science, 2003(3): 42-45.

[8] Lu Ya, Li Zhuozhuo. On the applicability of performance evaluation methods for information resource sharing systems[J]. Library and Information Service, 2009, 53(19): 18-21, 111.

[9] Ye Jiyuan. Discussion and enlightenment of "full evaluation" of library science journals[J]. China Library Journal, 2010, 36(5): 60-66.

[10] Liu Lifan, Zhu Ziyang. Research on popular TOP book recommendation model in university libraries based on "full evaluation" theory[J]. Library and Information Service, 2018, 62(7): 47-53.

[11] Wang Yanyan. Research on theoretical foundations of performance management: Review and prospect[J]. Modern Management Science, 2011(6): 95-97.

[12] Liu Hailan. Research on the effectiveness of undergraduate teaching audit evaluation[J]. Jiangxi Social Sciences, 2014, 34(4): 236-241.

[13] Ding Dong, Zhang Changxiu. Preliminary exploration of evaluation index system framework for university library service effectiveness[J]. Library Work and Study, 2018(10): 58-63.

[14] Deng Chunlin, Xiao Dongmei, Zhou Jiagui. Reconstructing the evaluation index system for academic libraries in ordinary colleges and universities[J]. Journal of Academic Libraries, 2003(4): 18-22.

[15] Wang Xiangjun. 30-year review and prospect of academic library evaluation[J]. Library Theory and Practice, 2010(3): 67-71.

[16] Bie Dunrong. On the functions of higher education evaluation[J]. Higher Education Research, 2002(6): 34-38.

[17] National Information and Documentation Standardization Technical Committee. Information and documentation—Library performance indicators: GB/T 29182-2012[S]. Beijing: China Standard Press, 2013.

[18] Li Zhenling, Xu Ping. Data-driven monitoring and evaluation of academic libraries: Connotation, methods, and reflection[J]. Library Theory and Practice, 2016(6): 16-20.

[19] Zhang Changzhi. Summary of the "Seminar on Statistics and Evaluation of Academic Libraries"[J]. Journal of Academic Libraries, 2017, 35(5): 10-14.

[20] An Bangjian. Discussion on the evaluation scheme for automation application in academic libraries—On the advantages of single-item evaluation[J]. Journal of Academic Libraries, 1997(5): 10-12.

[21] Zhu Linsheng, Sun Jinjuan. Industry college model: New exploration for applied talent cultivation in newly established undergraduate institutions[J]. University (Academic Edition), 2012(12): 18-23, 10.

[22] Zhang Wei. Analysis of library evaluation mechanism and its balancing factors[J]. Library and Information, 1992(3): 23-26.

[23] Li Shumin. Basic theoretical issues of academic library evaluation[J]. Library and Information, 1995(2): 70-74.

[24] Shen Yaqi, Shao Chenjin, Xu Jing, et al. Discussion on library support for ABET international engineering education professional certification framework[J]. Library Journal, 2018, 37(8): 61-66.

[25] Zong Hongxia. Discussion on the relationship between "undergraduate teaching evaluation" and professional institution libraries[J]. Modern Information, 2006(5): 212-213, 215.

[26] Hu Liangsheng, Wang Ling, Guan Limei. Analysis of the influence mechanism of top-level design based on educational evaluation on academic libraries[J]. Journal of Academic Library and Information Science, 2014, 32(4): 5-7, 11.

[27] Su Xianyi, Zhou Zhigang. Teaching evaluation and analysis of library indicators[J]. Library Development, 1998(4): 54-56.

[28] Hu Liangsheng. Influence of educational evaluation on academic libraries[J]. Library Development, 2005(6): 92-94.

[29] Yang Xin. Analysis and research on library indicators in university teaching level evaluation[J]. Library, 2007(4): 38-40.

[30] Zhang Jing, Chen Youzhi, Zheng Zhangfei. Analysis and research on library collection indicators in undergraduate teaching level evaluation[J]. Journal of Academic Libraries, 2006(6): 21-25.

[31] Qiu Jiqun. Discussion on library collection quantity indicators in university teaching evaluation[J]. Information Studies: Theory & Application, 2006(2): 206-208, 200.

[32] Ding Dong, Zhang Changxiu. Preliminary exploration of evaluation index system framework for university library service effectiveness[J]. Library Work and Study, 2018(10): 58-63.

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Construction and Development of Academic Library Evaluation System

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Abstract: [Purpose/significance] Evaluation is an effective management tool to supervise library function fulfillment and realize library value. However, academic libraries have not yet formed a periodic and highly operable evaluation system, which has become a major obstacle to their development. [Method/process] Based on the *Regulations of the Library of Ordinary Colleges and Universities* and guided by CIPP evaluation theory, the "Full Evaluation" analytical

framework, management control theory, and the "four-generation evaluation" development stage theory, this paper proposes a "five-in-one" evaluation system for academic libraries including library self-evaluation, policy evaluation, educational evaluation, certification evaluation, and monitoring evaluation. Using literature research and comparative methods, it explains and summarizes the connotation and development status of each evaluation system and discusses their value, function, and problems. [Result/conclusion] Constructing the "five-in-one" evaluation system is scientifically sound and necessary. We should strengthen theoretical research and practical exploration of certification evaluation, restart policy evaluation, and seek new statistical methods and technologies to improve monitoring evaluation.

Keywords: Academic library; Self-evaluation; Policy evaluation; Educational evaluation; Certification evaluation; Monitoring evaluation

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