

Research on the Current Status of and Countermeasures for AIGC Knowledge Services in University Libraries Oriented Toward Future Learning Centers

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Abstract

This paper systematically analyzes the current state of practice in AIGC-driven knowledge services in university libraries, aiming to gain an in-depth understanding of the degree, scope, and effectiveness of the application of AIGC technologies in university library knowledge services. Guided by the target framework of the future learning center, and integrating practical cases with technological logic, the paper proposes adaptive optimization strategies to provide references for university libraries in developing AIGC-based knowledge services. Through a review of relevant domestic and international literature, combined with an investigation and analysis of the AIGC knowledge service practices of libraries at 147 “Double First-Class” universities, the paper explores the existing deficiencies and causes in current AIGC knowledge services in university libraries, and ultimately proposes development strategies with the construction of future learning centers as the point of departure. University libraries should seize the opportunities of the AI era, integrate AIGC to innovate knowledge service mechanisms and content, renew service concepts, promote the intelligent development of libraries, and support the construction of future learning centers.

Full Text

[Users · Services]

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Abstract This article systematically analyzes the current practice of knowledge services in university libraries driven by artificial intelligence generated content (AIGC), aiming to gain an in-depth understanding of the degree, scope, and effects of AIGC technology application in university-library knowledge services. Guided by the target framework of future learning centers, and by integrating practical cases with technological logic, the article proposes adaptive optimization strategies to provide references for university libraries in carrying out AIGC knowledge services. Through a review of relevant domestic and international literature, combined with an investigation and analysis of AIGC knowledge-service practices in 147 “Double First-Class” university libraries, the article explores the shortcomings and causes of current AIGC knowledge services in university libraries, and ultimately, with the construction of future learning centers as the point of implementation, proposes development countermeasures. University

libraries should seize the opportunities of the AI era, integrate AIGC to innovate knowledge-service mechanisms and content, transform service concepts, promote the intelligent development of libraries, and support the construction of future learning centers.

[Keywords] AIGC; knowledge services; future learning centers; university libraries

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Introduction

At the end of 2021, Wu Yan, then Director-General of the Department of Higher Education of the Ministry of Education, stated at the academic symposium marking the 40th anniversary of the establishment of the Higher Education Library and Information Working Committee that universities should be encouraged to rely on libraries to pilot the construction of a number of “future learning centers.” This proposal clarified a strategic direction for the intelligent transformation of university libraries. The construction of future learning centers must accelerate the application of next-generation information technologies, use big data, AI, and blockchain technologies to build knowledge graphs and knowledge-navigation systems, speed up the construction of smart libraries, activate literature resources and spatial resources, and provide precise and visualized knowledge services and support for teaching, scientific research, and the development of academic disciplines and majors[1]. At the same time, as a new type of learning platform integrating physical, virtual, and interactive forms of space, the future learning center must thoroughly realize full-process transformation, upgrading, and reconstruction from literature-centered services to information- and knowledge-service-centered services[2]. Among these, knowledge services are the core element of future learning centers. Based on capabilities in knowledge searching, organization, analysis, and reorganization, they can be integrated into users’ problem-solving processes according to users’ problems and contexts, ultimately providing services that effectively support knowledge application and knowledge innovation[3]. At present, innovative applications of next-generation information technology—especially artificial intelligence generated content (AIGC) technology—are profoundly reshaping the underlying logic of library knowledge services, empowering innovation across the entire chain and becoming a core driving force in promoting the transformation of libraries toward future learning centers. Relying on intelligent content generation, multimodal interaction, and dynamic knowledge evolution capabilities, AIGC technology can not only effectively improve efficiency in business links such as

entity recognition, semantic description, relationship prompting, content extraction, and knowledge organization, but also play an active role in guiding users' participation in knowledge creation and services[4]. Against the background of constructing future learning centers, university libraries should actively grasp the development opportunities brought by AIGC technology, use intelligent technologies to transform traditional knowledge-service models and empower the upgrading of knowledge services, while also expanding service boundaries, thereby improving readers' efficiency in acquiring knowledge, enhancing user experience, and promoting the transformation of libraries toward digitization, intelligence, and personalization.

1 Current Status of Research on AIGC Knowledge Services in University Libraries Driven by Future Learning Centers

Since the concept of "future learning centers" was proposed, China's university library community has responded actively. However, with regard to what a future learning center actually is, how it should be positioned, how it should be constructed, and how it should operate after completion, university libraries are still in an exploratory stage[5]. Under the dual drive of libraries' digital transformation and the deepening of educational infrastructure construction, a consensus has been reached in the industry: future learning

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the center is not only an integrated carrier of physical space and digital resources, but also a key node in the restructuring of a people-centered knowledge-service ecosystem

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. For example, Gong Jiaoteng et al.

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, through an investigation of spatial-scenario construction cases for future learning centers in university libraries in the Guangdong-Hong Kong-Macao Greater Bay Area, proposed that future learning centers should support open knowledge-service processes, use unrestricted spaces to carry out new types of knowledge-service activities, and meet learners' diverse needs in the context of educational digitalization. It can thus be seen that, against this background, innovating knowledge services is of great significance to the construction of future learning centers.

Traditional knowledge services, constrained by static resource-organization methods and one-way information-transmission models, can no longer easily meet the personalized needs of teachers and students or the dynamic development requirements of lifelong learning. Innovating knowledge services through cutting-edge technologies such as AI, big data, and blockchain is a key pathway for supporting future learning centers in achieving upgraded educational goals and functional iteration. Among these, regarding how to use AIGC technology to innovate library knowledge services, scholars in China and abroad have in recent years conducted multidimensional research. First, in terms of theoretical research on AIGC technology empowering intelligent knowledge services in libraries, most studies focus on discussions of basic principles, the construction of service models, and the building of service scenarios. For instance, taking ChatGPT as an example, Gu Tingting et al.

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analyzed the impact of ChatGPT on the intelligent development of library knowledge services and the transformation of service-innovation paradigms, pointing out that ChatGPT can reshape knowledge-service scenarios. Some scholars have explored the application prospects of ChatGPT in the field of library knowledge services, involving reference consultation, information retrieval, subject services, education and training, intelligence services, and intelligent recommendation, and have proposed countermeasures for possible risks and challenges

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. Li Mo et al.

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constructed a framework for a library knowledge-service system based on generative artificial intelligence and general artificial intelligence. Chu Jiewang et al.

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analyzed the pathways by which AIGC empowers library knowledge services from three dimensions: expanding the elements of library knowledge services, participating in the knowledge-service process, and improving the knowledge-service framework. Mali T. S. et al.

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pointed out that ChatGPT can play a role in collection-catalog searches, personalized reading recommendations, and collection development. Lund B. D. et al.

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conducted interview research on the potential impact of ChatGPT on libraries, arguing that it can play a positive role in improving reference consultation services, generating cataloging metadata, and enabling content creation. Second,

in terms of practical research on AIGC assisting library knowledge services, Yu Wei

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studied the practical experience of U.S. university libraries in providing Chat-GPT services, offering reference for domestic university libraries. Yuan Husheng et al.

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, based on AIGC technology, built a conversational knowledge-service platform—ChatLib—composed of an intelligent interaction layer, a knowledge-service layer, and a knowledge-engine layer. Guo Limin et al.

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, taking genealogical knowledge content as the experimental object, explored a construction path for a library large-language-model knowledge-service system integrating the ReAct model.

In summary, existing research mostly focuses on theoretical discussions of the impact, value, empowerment principles, service models, and application scenarios of AIGC technology for knowledge services in smart libraries. It also includes investigations of the application of AIGC technology in foreign libraries and studies on the construction of related technical platforms. However, there remains a lack of investigative research on the actual application of AIGC technology in domestic university libraries. Taking the libraries of China's 147 "Double First-Class" construction universities as the research objects, this article aims to grasp the current state of practice in their AIGC-technology-assisted knowledge services, analyze the problems existing in AIGC knowledge services in Chinese university libraries, and, with the realization of the vision of future learning centers as the goal, propose recommendations for the development of university-library knowledge services driven by AIGC technology.

2 Current State of Practice in AIGC Knowledge Services in University Libraries

This article takes as its sample the 147 "Double First-Class" construction universities announced by the Ministry of Education in 2022. From January to March 2025, it used literature research and online survey methods to investigate the current status of AIGC knowledge services in their libraries. The specific investigation steps were as follows: first, the authors browsed columns such as "Notices and Announcements," "News Updates," "Announcement Messages," and "Lectures and Training" on library official websites, and conducted site searches using keywords such as "AIGC," "AI," "large language model," and "ChatGPT"; at the same time, they followed library WeChat public accounts, searched for relevant article reports, and focused on compiling and analyzing information related to AIGC knowledge services. Second, after using large language models to identify omissions and fill gaps, they again logged on to library official websites

Figure 1. Development of AIGC knowledge services in “Double First-Class” university libraries. Bar chart showing service types and counts: literacy education—lectures/training 54, librarian training 8, multimedia content push 10; resource/tool category—AI tools 35, AI-themed or software book exhibitions 7, AI book recommendations 9, AI topic guides 4, AI user-manual compilation 1; research activity category—academic seminars 6, competitions 2, cultural salons 3.

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to search and verify the information. Finally, based on information obtained through literature research, they conducted factual data searches for universities that had been reported as carrying out AIGC knowledge services. The investigation shows that among the libraries of the 147 “Double First-Class” universities, 72 have carried out AIGC-technology-assisted knowledge-service practices, accounting for approximately 48.98%. The specific situation of each university library is shown in Figure 1.

Figure 1. Development of AIGC knowledge services in “Double First-Class” university libraries

2.1 Literacy Education Category

A total of 72 “Double First-Class” universities have carried out literacy-education AIGC knowledge services, mainly in the forms of lectures and training, librarian training, and multimedia content push. Among them, lectures are the most common form, with 54 university libraries holding relevant thematic lectures. The lecture content centers on the basic concepts of AIGC, its development history, application scenarios, usage techniques, impacts, and trend discussions, aiming to consolidate the theoretical foundation of the educational audience; for example, Sichuan University’s “Building Your Personal AI Assistant from Scratch”

lectures, and Northeast Normal University’s “AIGC-Powered Academic Research Workshop” lecture.

The deep cultivation and application of AIGC technology in libraries requires librarians to have the ability to learn quickly and adapt to new technologies; therefore, librarian training is crucial. Such training aims to improve librarians’ AIGC literacy and, while explaining fundamentals, places greater emphasis on hands-on practice. However, only 8 university libraries have carried out such

training, a relatively small number.

In terms of multimedia content push services, 10 university libraries disseminate AI-related knowledge through WeChat official accounts, using concise knowledge content such as WeChat posts and short videos to help students use fragmented time to master AI knowledge. For example, Beijing Normal University pushes “A Grand Collection of AI Tools for Academic Research” through WeChat posts, while Xiamen University pushes ChatGPT-related content through short videos.

2.2 Resource and Tool Category

A total of 56 “Double First-Class” university libraries have carried out resource- and tool-based AIGC knowledge services. These services mainly include self-developed AI tools or AI tools introduced from data vendors, AI-themed physical book exhibitions, and AI book recommendations. A small number of universities have also created AI thematic guides, and 1 university has compiled an AI user manual; overall, these services are highly practical. Among them, the largest number of universities—35—provide services through AI tools offered by their libraries. Of these 35 university libraries, except for Tsinghua University Library and Peking University Library, the remaining 33 have all deployed AI librarians. Readers can meet needs such as routine consultation, service handling, and resource acquisition in a one-stop manner through dialogue with AI librarians. However, the AI librarians equipped by most libraries can only provide consultation and Q&A services based on speech recognition and corpus retrieval/matching. They fall within the scope of narrow AI technology and still have limitations in understanding user intent, handling complex queries, and providing personalized services. In the few libraries that have built the open-source model DeepSeek, the content generated by their AI librarians is also based only on data obtained from open websites; they have not yet used libraries’ massive literature resources for training. On April 28, 2024, Tsinghua University launched the “AI Navigation Assistant” and the “AI Reading Assistant.” The “AI Navigation Assistant” is trained on the content of database description pages and can answer questions according to user queries while recommending links to relevant databases for direct access. The “AI Reading Assistant” can conduct full-text analysis of articles and supports functions such as extracting key points, translation, multi-round Q&A, and online generation of knowledge graphs, thereby realizing understanding and generation based on library resources. Peking University Library has renovated its Data Reading and Sharing Hall by adding a high-performance experience area. This area is equipped with high-performance hardware and preinstalled with AI tools such as DeepSeek, allowing readers to experience privately deployed large models.

In addition, 7 university libraries have held AI-themed physical book exhibitions, and 9 university libraries have provided AI book recommendations. The libraries of four universities—Tsinghua University, Nanjing Medical University, Sichuan University, and the University of Electronic Science and Technology of China—have set up AIGC thematic guides on the homepage of their official websites,

introducing AIGC, its policy norms, information, and citation requirements, and classifying and organizing AIGC tools while explaining their characteristics and usage scenarios. Donghua University has specially compiled the *User Manual for Chinese Artificial Intelligence Large Models* and the *User Manual for Foreign Artificial Intelligence Large Models* for readers' reference.

2.3 Research Activity Category

A total of 11 “Double First-Class” university libraries have carried out research-activity-based AIGC knowledge services, in forms including academic seminars, competitions, and cultural salons. Such activities are rich in form, forward-looking in the topics discussed, capable of pooling ideas and exchanging thoughts from either a global, macro perspective or a precise and detailed angle, and highly interactive. For example, Xiamen University Library held the “Embrace AI, Move toward Tomorrow” pan-technology forum, which not only explored the application prospects of AI in library work and summarized work experience, but also conducted technical analyses of certain business difficulties, pain points, and bottlenecks, and proposed improvement strategies.

3 Analysis of the Current Status of AIGC Knowledge Services in University Libraries

As can be seen from Figure 1, China's “Double First-Class” university libraries have already conducted preliminary practical explorations of AIGC knowledge services. To a certain extent, these efforts have improved users' levels of AI cognition, application ability, and ethical literacy; provided technical support for users' learning, life, academic research, and other activities; and built platforms for exchange and collision of ideas between academia and industry, as well as for service innovation. However, there are also some problems in the AIGC knowledge services currently carried out by “Double First-Class” university libraries. The underlying causes need to be explored in depth in order to seek effective solutions.

3.1 Insufficient Service Popularization: Cognitive Lag and Resource Constraints

According to the survey results, among 147 “Double First-Class” university libraries, only 72 have carried out AIGC knowledge services, less than half of the total, indicating a relatively low level of popularization. Among the three categories of AIGC knowledge services investigated, even the literacy-education category, which accounts for the highest proportion, has seen only 18 universities carry out related activities three or more times. This shows that AIGC knowledge services have not yet become a key task for libraries and have not formed a normalized mechanism. After the advent of AIGC, data companies

such as Elsevier and CNKI have shifted their R&D focus toward the deep integration of AI technology and knowledge services, and have released tools such as Scopus AI and CNKI AI, respectively. However, as bridges connecting commercial database resources and users, libraries' AIGC knowledge services are still in an exploratory stage, and there is insufficient awareness of "connecting database resources with library resources and developing in-depth AIGC knowledge services." In addition, differences in funding among university libraries are a key constraining factor. This funding gap directly affects the balanced development of AIGC technology in university libraries: leading institutions such as Tsinghua University and Peking University, relying on sufficient funds, can independently conduct R&D or obtain computing-power support through university-enterprise cooperation, thereby providing readers with richer and more advanced AIGC knowledge services; ordinary institutions, by contrast, have difficulty bearing the investment required for high-tech technologies because of insufficient budgets.

3.2 Limited Service Forms: Absence of Planning and Weak Innovation

At present, although China's "Double First-Class" university libraries have already formed literacy

education, resource tools, and research activities. However, these three forms of AIGC knowledge service are markedly unbalanced: more than half of the services are concentrated in the category of literacy education. It can be seen that, in most university libraries, the forms of AIGC knowledge service are relatively singular, remaining at the shallow level of knowledge explanation and tool-based application. Training in practical ability is insufficient, systematic courses are relatively lacking, and the use of forms such as fragmented knowledge push services and short-video micro-classes is also relatively limited. Judging from the distribution of service content, 67.00% of services focus on skills development, helping users master operational skills through introductions to AI tools; 29.00% focus on knowledge cultivation, aiming to improve users' understanding of AIGC; and only 12.00% of services focus on users' attitudes, values, and ethics education, the lowest proportion. Overall, the pattern is characterized by "an abundance of shallow-level content and a scarcity of deep-level content." In sum, most university libraries continue traditional service models and simply equate AIGC knowledge services with "technical training," lacking in-depth development and application in scenarios such as practical courses, personalized services, research support, and ethics education. This situation not only reflects the absence of overall planning by university libraries in developing AIGC knowledge services, with insufficient consideration of the comprehensiveness and diversity of services; it also exposes the lack of clear guidance and incentive mechanisms in university libraries, causing librarians, when carrying out AIGC knowledge services, to habitually adopt traditional working methods and to lack innovative motivation and pioneering spirit.

3.3 Blocked Service Expansion: Staff Skill Shortcomings and Institutional Predicaments

The survey results show that, in terms of resource- and tool-based AIGC knowledge services, very few AI tools are developed on the basis of a library's own collection data and user data. Most university libraries that have launched AI librarians essentially rely on the resources of third-party data vendors and lack personalized applications based on their own institutional needs. From the perspective of the three core elements of AI—data, computing power, and algorithms—although university libraries possess large quantities of literature and multimedia digital resources as well as user behavior data, the realization of powerful computing power and algorithms requires substantial funding, highly compatible software and hardware infrastructure, and AI technical support. Yet in most university libraries, the work of technical departments is limited to the purchase, maintenance, user guidance, and training for hardware equipment, commonly used databases, and software; they lack independent development capabilities. If AI tools are to be customized and developed according to the specific needs of university libraries, continuous investment in resources for technical upgrading and maintenance will also be required to ensure the stability and advancement of services, which will greatly increase the development and operation costs of university libraries. In addition, most librarians currently engaged in AIGC knowledge services have the problem of a single knowledge structure. They lack interdisciplinary knowledge in library science, information science, computer science, and related fields, and in particular have limited understanding of computer technology, data analysis, and AI. As a result, when integrating AIGC technology with library services, they find it difficult to identify innovative entry points and are unable to provide knowledge services that are both innovative and practical. To break through this predicament, it is crucial to improve librarians' AI literacy and their capacity to apply relevant technologies. In addition to introducing new technical personnel, university libraries may also provide AIGC-related training for existing librarians; however, at present only eight "Double First-Class" university libraries have implemented such training.

3.4 Stagnation in Service Optimization: Absence of Evaluation Mechanisms and Feedback

The survey shows that, at present, when China's "Double First-Class" university libraries carry out AIGC knowledge services, they generally adopt a one-way transmission model: libraries focus only on conveying AIGC knowledge to users through lectures, training sessions, meetings, and other forms, while neglecting interaction and communication with users. At the same time, an evaluation mechanism for AIGC knowledge services has not yet been established. Only by conducting comprehensive, systematic, and objective evaluations of service effectiveness can libraries clarify the advantages and deficiencies of services, user satisfaction, and actual outcomes. Without the support of such evaluation data

and user feedback, university libraries will lack clear evidence and direction in subsequent service optimization, making it difficult to formulate targeted and effective optimization strategies, thereby hindering the improvement of AIGC knowledge service quality and innovation in service models.

4 Development Strategies for AIGC Knowledge Services in University Libraries Oriented Toward Future Learning Centers

Shi Yanfen et al. [6] proposed that the construction of future learning centers faces multiple challenges, and that their development should take knowledge services as the core, technological application and innovation as the foundation, and multi-institutional cooperation and coordination within the university as the guarantee. In light of the above challenges and the problems identified in the survey regarding the current state of AIGC knowledge services in university libraries, the following countermeasures are proposed.

4.1 Reshaping Knowledge Organization: Building a Large Platform for AIGC Knowledge Integration

Resource integration in future learning centers is the key to enabling AIGC technology to play its role in data mining, algorithm training, and content generation. It needs to be advanced on two levels through coordination among multiple campus institutions and cooperation with industry actors: integration of campus resources and integration of data through library-industry alliances. At the campus level, libraries possess massive multimodal literature resources, while offices of academic affairs, practical training centers, and other institutions hold diverse resources such as high-quality courses, practical training videos, and research outputs. Breaking down management barriers and coordinating cross-boundary integration can support the in-depth exploration of learning and research across the entire chain. Using AIGC's multimodal data acquisition and integration technologies to solve problems in data processing, knowledge organization, and data standards can lay the foundation for AIGC to 发挥 its advantages in content analysis and generation. Due to copyright restrictions, open AIGC platforms cannot generate content based on academic literature, and AIGC developed by commercial databases relies only on their proprietary resources. Libraries, however, possess massive quantities of lawful academic literature data; they can break through database barriers and build large models of resources and user behavior data, providing standardized and authoritative content and better meeting the information needs of university users. At the level of library-industry alliances, drawing on the experience of existing cooperation mechanisms, it is necessary to explore an AIGC service community mechanism, realize co-construction and sharing in data resources, technology research and development, infrastructure, user training data, and other areas, and create an integrated AIGC service platform combining intelligent consultation, multi-lingual translation, literature analysis, resource retrieval, and other functions.

This will help deepen AIGC knowledge services, enrich service connotations, integrate technological advantages, and optimize development costs, thereby better aligning with the requirements for the construction of future learning centers.

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4.2 Innovating Knowledge Acquisition: Exploring New Models of AIGC Knowledge Services

On the one hand, libraries should actively explore an integrated in-library AIGC service model. Multimodal data processing should be carried out for in-library reading and discussion spaces, print and electronic literature resources, personalized recommendations, learning-support services, lectures and activities, and so forth. By redesigning mobile and web portals and upgrading offline in-library interactive access devices, libraries can, on the basis of comprehensive dynamic collection, in-depth processing, and integrated fusion of all local resources, give full play to AIGC's comprehension and generative capabilities in reference consultation, resource use, and learning and research support. On the other hand, multi-portal AIGC knowledge navigation should be established. In the new-media matrix and portal websites of university libraries, three major sections should be set up: AIGC tool navigation, knowledge navigation, and user navigation. Among them, the tool-navigation section should be organized according to the processes of learning and academic research, and divided into functions such as AI-assisted reading, AI-assisted writing, and AI data analysis. It should integrate various relevant tool resources based on existing conditions, so that users can choose according to their needs. The AIGC knowledge-navigation section should include knowledge application and AI-interaction thinking training, while also taking into account AI ethics, values, the cultivation of critical thinking, and norms for AI use. In response to users' differing levels of AI literacy, an AIGC user-navigation section should be established—such as for AI beginners and AI experts—and content should be organized hierarchically. Through static knowledge push services, short-video micro-classes, systematic course content, as well as dynamic lectures and training, competitions, and scenario-based prompt training, users can be helped to make precise choices.

4.3 Empowering Technology Supply: Strengthening the Librarian Workforce for AIGC Knowledge Services

Librarians' mastery and application capabilities with respect to AIGC technology are the foundation for university libraries to develop AIGC knowledge services, and they are also the core driving force behind the intelligent transformation of university libraries. Librarian teams need to continue renewing themselves so as to better respond to the challenges of new technologies and innovatively use those technologies to serve users. This requires a strategy of "bringing in" and

“going out” to build a high-quality AI librarian team. “Bringing in” includes three measures: first, introducing professionals with relevant technical backgrounds to provide support for the long-term development of technological application and service innovation in university libraries; second, inviting domain experts and scholars to conduct consultation and argumentation and share experience; and third, promoting university-enterprise cooperation through project collaboration and introducing the advantages of third-party technical talent. “Going out” focuses on improving librarians’ capabilities: librarians should be selected from time to time to study at relevant enterprises and exemplary service libraries, and to exchange and discuss practical experience in AIGC knowledge services; librarians should be actively organized to participate in national-level systematic technical training so as to enhance cognition and strengthen capabilities; and the cultivation of interdisciplinary talent should be used to accelerate the transformation of librarians’ roles and improve their job competence in the AI era. In addition, personnel-management systems must also be optimized: dedicated AI service positions should be created and their responsibilities clearly defined; a personnel reward and evaluation mechanism should be established, incorporating content related to AIGC knowledge services into the core elements of performance appraisal. This will not only ensure the implementation intensity of AIGC knowledge services and promote the normalization of service models, but also effectively link librarians’ service quality with performance evaluation.

4.4 Improving Service Safeguards: Strengthening Supporting Management Mechanisms for AIGC Knowledge Services

To ensure the efficient operation of AIGC knowledge services, it is necessary to adjust and build management mechanisms that are precisely aligned with, coordinated with, and flexible and convenient for the development direction of AIGC, so as to remedy management shortcomings such as inaccurate service positioning, biased resource allocation, and insufficient risk management, and to achieve an effective and sustainable management transformation. This can be advanced in three specific ways. First, a service-effectiveness evaluation mechanism should be established. Comprehensive evaluations should be carried out around dimensions such as service satisfaction and the degree to which users’ AI literacy has improved; through continuous review and reflection, service content and methods should be constantly optimized. Second, library-specific systems and procedures should be formulated. On the one hand, systems for the use of AIGC should be standardized: on the basis of national laws and regulations related to generative artificial intelligence and industry norms, the library’s own usage rules and operational recommendations should be supplemented to guide users in correct use. On the other hand, related business processes need to be optimized, internal support mechanisms reconstructed, user feedback collected regularly, and service strategies adjusted in a timely manner, so as to ensure the efficient and stable operation of AIGC technology and provide users with high-quality services. Third, a mechanism for cross-departmental collaboration within the university should be promoted. AIGC affects all aspects of higher ed-

ucation, and the construction of future learning centers oriented toward AIGC requires the integration of diverse resources and the smoothing of internal university operating mechanisms. Administrative departments can rely on their management advantages and the momentum of educational reform to establish practical training projects and related courses, strengthening the cultivation of AI application abilities and information literacy among teachers and students; student associations guided by library instructors can be established, generating a peer-leading effect through self-organized research and learning and attracting the attention of more student groups; research projects can be set up to provide support and assist in platform research and development, the promotion of outcomes, and the implementation of innovative practices; and embedded AI literacy courses can be jointly offered with colleges, realizing AIGC-integrated teaching and assessment within disciplinary contexts.

5 Conclusion

This paper first systematically reviews the research status of AIGC knowledge services in university libraries. It then, based on an empirical survey of AIGC knowledge-service practices in the libraries of 147 “Double First-Class” universities in China, analyzes in depth from multiple perspectives the main problems currently existing in practice and explores their causes. On this basis, guided by the target framework of future learning centers, it proposes targeted strategies for optimizing practice. However, this paper still has two limitations. First, constrained by the rules governing access to media information, it was not possible to comprehensively collect the data required for the study through automated means; the use of manual investigation may have led to omissions in some information and an incomplete data sample, thereby affecting the comprehensiveness of the analysis results. Second, AIGC technology is in a stage of rapid iterative development, and the research content cannot fully cover the latest technological advances and practical application cases; there may therefore be deficiencies in terms of the timeliness of the research. Accordingly, future work can further deepen empirical research, with emphasis on three aspects: first, the specific mechanisms by which AIGC technology improves the quality and efficiency of library services; second, the effectiveness of AIGC technology in meeting the needs of teachers and students and the practical challenges it faces in that process; and third, the role of AIGC technology in promoting

the specific contribution pathways for enhancing the vitality of academic exchange and the capacity for research innovation in universities.

References

- [1] Wu Yan. Accelerating the modernization of university libraries to support the high-quality development of higher education [J]. *Journal of Academic Libraries*, 2022(1): 7–8.
- [2] Fan Zhenjia, Yang Lijuan, Zhang Wenyan. Future learning centers: concepts,

elements, and system construction [J]. *Library and Information Service*, 2024(6): 3-11.

[3] Zhang Xiaolin. Toward knowledge services: seeking growth points for library and information work in the new century [J]. *Journal of Library Science in China*, 2000(5): 32-37.

[4] Cai Dandan, Song Gesheng, Liu Wei. Innovating library knowledge services with AIGC [J]. *Library Journal*, 2023(12): 36-44.

[5] Huang Ruhua, Shi Leyi, Jiang Yumeng. 6I Future Learning Center: a new exploration of digitally and intelligently empowered teaching and research services in university libraries [J]. *Journal of Library Science in China*, 2024(5): 42-58.

[6] Shi Yanfen, Chen Xin, Ding Ning, et al. Construction of future learning centers: research on scenario design for knowledge services in university libraries [J]. *Library and Information Service*, 2024(14): 34-44.

[7] Dou Junteng, Hong Fanglin. Spatial scenario construction for future learning centers in university libraries: taking the Guangdong-Hong Kong-Macao Greater Bay Area as an example [J]. *Research on Library Science*, 2024(5): 42-52, 117.

[8] Gu Ting, Gao Bin. Reshaping intelligent knowledge services in libraries under new technological forms: taking ChatGPT as an example [J]. *Library Theory and Practice*, 2025(1): 30-41.

[9] Li Huaming. Opportunities and challenges: research on the application of ChatGPT in empowering library knowledge services [J]. *Journal of Library and Information Science in Agriculture*, 2024(8): 96-105.

[10] Liu Jian. Exploration of the application of ChatGPT technology in library knowledge services [J]. *Library Work and Study*, 2024(S1): 36-40.

[11] Guo Yajun, Ma Huifang, Zhang Xindi, et al. ChatGPT-enabled library knowledge services: principles, scenarios, and approaches [J]. *Library Development*, 2024(3): 60-68.

[12] Liu Yang, Li Qingyang. Principles, scenarios, and pathways of AIGC-enabled smart library services [C]// *Proceedings of the 16th Forum on Library Management and Service Innovation*. Shanghai: Renmin University of China Library; School of Information Resource Management, Renmin University of China, 2023: 31.

[13] Zhao Ruixue, Huang Yongwen, Ma Weilu, et al. Implications and reflections of ChatGPT for intelligent knowledge services in libraries [J]. *Journal of Library and Information Science in Agriculture*, 2023(1): 29-38.

[14] Li Mo, Yang Bin. From generative artificial intelligence to general artificial intelligence: empowering innovation in library knowledge service models [J]. *Journal of Library and Information Science in Agriculture*, 2024(6): 50-61.

- [15] Chu Jiewang, Du Xiuxiu, Li Jiaxuan. The impact of artificial intelligence generated content on smart library services and prospects for its application [J]. *Information Studies: Theory & Application*, 2023(5): 6-13.
- [16] Mali T S, Deshmukh R K. Use of ChatGPT in library services [J]. *International Journal of Creative Research Thoughts*, 2023(4): f264-f266.
- [17] Lund B D, Wang T. Chatting about ChatGPT: how may AI and GPT impact academia and libraries? [J]. *Library Hi Tech News*, 2023(3): 26-29.
- [18] Yu Xi. Practices and implications of ChatGPT services in American university libraries [J]. *Shandong Library Journal*, 2023(6): 97-105.
- [19] Yuan Husheng, Tang Jiale, Zhao Xichen, et al. ChatLib: reconstructing a knowledge service platform for smart libraries [J]. *Journal of Academic Libraries*, 2024(2): 72-80.
- [20] Guo Limin, Fu Yaming. Construction of a library large-language-model knowledge service system integrating the ReAct model [J]. *Library Tribune*, 2024(6): 61-70.

Research on the Status and Countermeasures of AIGC Knowledge Services in University Libraries for Future Learning Centers

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Abstract This study systematically analyzes the current state of knowledge service practices in university libraries driven by Artificial Intelligence Generated Content (AIGC), aiming to gain an in-depth understanding of the application level, scope, and effectiveness of AIGC technology in these services. Guided by the target framework of the future learning center and combining practical cases with technical logic, this study proposes adaptive optimization strategies to provide references for university libraries in implementing AIGC-based knowledge services. By organizing relevant domestic and international literature and analyzing the AIGC knowledge service practices in 147 “Double First-Class” university libraries, this paper explores the existing shortcomings and causes. Finally, it proposes development strategies based on the construction of future learning centers. University libraries should seize the opportunities presented by the artificial intelligence era, integrate AIGC to innovate knowledge service mechanisms and content, constantly update service concepts, promote the intelligent development of libraries, and contribute to the construction of future learning centers.

Keywords AIGC; Knowledge services; Future learning center; University library

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

Source: ChinaXiv. Machine translation. Verify with the original.