

Research on university library and intelligence information service in the new period

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Abstract: *In the digital era, academic library and information services at universities have undergone profound transformations and innovations, breaking free from the constraints of traditional library service models and embodying a people-centric service philosophy. This paper delves into the development history, characteristics, core content and methods, personnel qualities, and training of academic library and information services, integrating the application of modern technology to align with the needs of teachers and students in the realm of library and information services. This is conducive to harnessing the library's efficacy in guiding reading and nurturing culture, and explores how librarians should update their perspectives, enhance their skills, engage in interdisciplinary collaboration, and actively adopt new models such as information literacy promotion, cross-disciplinary cooperation, and user community building to better advance knowledge dissemination and academic research.*

Keywords: *New era; Academic library and intelligence; Information services*

1. Introduction

In the new era, academic library and information services play a pivotal role. With the rapid development of information technology and profound changes in the educational environment, the roles of libraries and information centers have gradually evolved into intellectual support platforms that provide students and scholars with knowledge access, academic exchange, and collaborative innovation. A deeper exploration of the evolution and innovation in this field, focusing on the development trends of library and information services in digitization, personalization, and innovation, as well as the cultivation of new qualities for library and information professionals to meet the demands of the new era, is imperative. Through in-depth research into academic library and information services, it is hoped to gain a better understanding of their value in knowledge dissemination, academic research, and social innovation, offering valuable insights and inspiration for improving service quality and expanding service domains.

2. Development History of Academic Library and Information Services

The development of academic library and information services has undergone a continuous evolution. In the past, libraries primarily played the role of storing and providing access to physical resources to meet the needs of students and faculty. However, with the advancement of digital technology, academic library and information services have undergone profound changes. Digital libraries, databases, electronic journals, and other digital resources have gradually replaced traditional printed media, providing students and scholars with more convenient and extensive avenues for accessing information.^[1] The information explosion has led to an increasing demand for personalized and precise information from users. Consequently, libraries are required not only to provide rich literature resources but also to offer personalized content recommendations through data analysis and intelligent technologies. Additionally, interdisciplinary research and knowledge innovation have given rise to users' demand for cross-disciplinary information resources. Libraries need to deeply integrate with discipline-based teaching, facilitate resource integration and sharing to support academic innovation. However, these transformations have also posed significant challenges. The rapid growth of digital information has made information management and protection more complex, with privacy and data security becoming critical concerns. Simultaneously, technological advancements necessitate libraries to transition from traditional services to digitization and intelligence. This requires librarians to enhance their skills and qualities to meet the demands of the new era.^[2]

3. Transformation and Characteristics of Academic Library and Information Services in the New Era

3.1 Technology-Driven Transformation

In the new era, academic library and information services are undergoing a significant transformation driven by technology. With the continuous advancement of information technology, digitization and intelligent technologies are rapidly permeating the library domain, providing new opportunities for the better development of library and information services.^[3] Digital libraries and resource management systems enable the efficient storage, indexing, and retrieval of vast electronic resources, offering users faster and more efficient means of accessing information. The application of technologies such as data analysis, artificial intelligence (AI), and natural language processing (NLP) allows libraries to better understand user needs and provide personalized and precise recommendations and services, further enhancing the user experience.^[4]

3.2 Diversified User Needs

In the new era, the information needs of university faculty and students have become more diversified and personalized. Traditional service models are no longer aligned with real-world requirements. Users' demands for information access have gradually shifted from "accessing information" to "accessing valuable information." Therefore, libraries need to transition from being content providers to information processors and knowledge disseminators. Libraries should analyze users' interests and behaviors to tailor personalized and precise services, meeting users' needs in academic research, course learning, and innovative exploration. Additionally, the cross-disciplinary nature of research and knowledge innovation has given rise to a demand for interdisciplinary information resources. Libraries must actively engage in discipline-based teaching and research to provide cross-disciplinary knowledge support to faculty and students.^[5]

4. Core Content and Methods of Academic Library and Information Services

4.1 Development and Management of Digital Resources

The development and management of digital resources hold a crucial position in academic library and information services. The significance of this field has grown significantly in the digital age, as digital resources have become central to teaching, research, and academic dissemination. This implies that university libraries must actively adopt and promote the construction and maintenance of digital libraries. This includes various forms of digital resources, such as digitized books, journals, theses, and archives. The development of these digital resources not only facilitates the efficient storage, retrieval, and utilization of vast information but also reduces dependence on printed materials, thus reducing environmental impact. Libraries need to equip themselves with advanced digital equipment and technology to ensure precise and efficient management of digital resources. Additionally, digital resources require scientific and clear classification and labeling for users to easily, quickly, and accurately locate the information they need.^[6] Moreover, the management of digital resources must also consider the legitimate use and protection of intellectual property rights to ensure lawful and compliant usage. Furthermore, open-access resources are an essential direction for digital resource development. Libraries can actively support open-access publishing, promoting the free dissemination of research results. This contributes to knowledge sharing on a global scale, fostering mutually beneficial partnerships and advancing open science. Libraries can also actively implement national digital culture strategies, construct smart libraries, enrich digital cultural resources, and enhance the digitalization level of library services. By integrating modern technologies such as 5G and big data, libraries can innovate their services and empower them. This extends the breadth and depth of users' reading experiences, striving to provide users with more intelligent, efficient, and convenient digital cultural services.^[7]

4.2 Data-Driven Decision-Making and Services

Data-driven decision-making and services hold significant importance in academic library and information services. This approach not only enhances service efficiency but also better caters to user needs, driving the development of higher education and academic research. Data analysis provides

libraries with profound user insights. By monitoring user behaviors, such as search records, borrowing history, and download rates, libraries can gain a better understanding of users' interests and academic requirements. This enables libraries to offer users resource recommendations related to their academic interests, improving information retrieval efficiency and optimizing resource management. Data analysis can also help libraries evaluate the usage of different resources, determining whether there is a need to subscribe to or acquire additional resources. Such data-supported decisions effectively control procurement costs, ensure the quality and diversity of library collections, and enhance service quality. By monitoring user feedback and issue reports, libraries can promptly identify and address service-related problems, enhancing user satisfaction. This helps libraries allocate resources more effectively, improve service processes, and meet the evolving needs of users.

4.3 Application of Innovative Technologies in Information Services

The application of innovative technologies in academic library and information services has become a key factor in improving service quality and user experience. Artificial Intelligence (AI) has become a valuable assistant for libraries. AI can be used for intelligent search and information retrieval, providing more accurate search results based on users' queries. It can also be applied to literature recommendation systems, offering literature and information resources relevant to users' interests and academic fields. This not only saves users' time but also enhances their satisfaction. Natural Language Processing (NLP) technology improves the efficiency of literature retrieval and information extraction. NLP can be used to process large-scale textual data, extracting valuable information, and helping researchers access the knowledge they need more conveniently. Additionally, NLP supports multilingual searches and cross-cultural communication, expanding the internationalization capabilities of libraries. Virtual Reality (VR) and Augmented Reality (AR) technologies provide users with entirely new learning and research experiences. Libraries can create virtual libraries or laboratories, allowing users to explore resources and academic environments immersively through VR devices. Augmented Reality technology overlays digital information onto the real world, offering users more interaction and interactivity, making learning and research more accessible.

4.4 Information Literacy and User Training

Information literacy and user training are essential components of academic library and information services, crucial for cultivating users with effective information acquisition and utilization skills. Information literacy is one of the indispensable skills in modern society. With the explosive growth of information, users need efficient information retrieval, evaluation, and management skills. Information literacy encompasses not only the use of search engines but also knowledge about information credibility assessment, citation standards, intellectual property rights, and more. Libraries can help users acquire these critical skills by offering information literacy training courses, thereby enhancing their academic achievements and professional competitiveness. Moreover, information literacy training should be continuous. As technology and information environments constantly evolve, users need continuous updates. Libraries can periodically organize targeted training activities that cover users at different levels, enhancing their information literacy and ensuring they stay current with the latest information retrieval and management technologies. Additionally, libraries can provide online training resources, allowing users to learn according to their own schedules and needs. This helps users become proficient in using library databases, literature management tools, data analysis software, and more. It enables users to better utilize digital resources and services, improving their research quality and work efficiency.

5. Qualifications and Training of Personnel in Academic Library and Information Services

5.1 Changes in Knowledge and Skill Requirements

Personnel in academic library and information services need to adapt to changing knowledge and skill requirements. Traditional librarians primarily focused on literature management and resource storage. However, modern libraries require them to possess broader knowledge and skills. With the widespread adoption of digitization and intelligent technologies, librarians need to have expertise in information technology and data management. They also need to understand intellectual property laws, privacy protection, and ethical issues to ensure the legal and compliant operation of libraries. Furthermore, interdisciplinary collaboration and user-oriented services demand librarians to have cross-disciplinary and cross-cultural communication and collaboration skills. These requirements

necessitate librarians to continuously update their knowledge, enhance their professional competence, and effectively improve service quality to meet the evolving demands of the working environment.

5.2 Specialized Training and Development Mechanisms

To meet the new knowledge and skill requirements, personnel in academic library and information services need to participate in specialized training and continuing education. Libraries should establish comprehensive training plans, providing staff with opportunities to participate in courses and seminars, helping them continuously update their knowledge and skills. Additionally, libraries should encourage librarians to engage in academic research and professional organizations to broaden their horizons, share experiences, and enhance the impact of their institutions. Moreover, libraries should establish promotion and career development paths, offering employees opportunities for growth and advancement, motivating them to proactively improve their professional competence to better adapt to the evolving requirements of library and information work.

5.3 Interdisciplinary Collaboration and Information Literacy Promotion

Personnel in academic library and information services should also actively engage in interdisciplinary collaboration and information literacy promotion. Interdisciplinary collaboration aims to better support the research needs of cross-disciplinary studies. Librarians can collaborate with teachers and researchers in various academic disciplines to understand their information needs and jointly develop interdisciplinary resources and services. Information literacy promotion is designed to enhance the information literacy levels of faculty and students. Librarians can conduct information literacy training and educational activities to help users better utilize library resources and tools and adapt to academic and professional demands more effectively.

6. Innovative Models in Academic Library and Information Services

6.1 Cross-Border Collaboration and Resource Integration

Cross-border collaboration and resource integration represent crucial innovative directions in academic library and information services. They play a pivotal role in meeting user demands, optimizing resource utilization, and promoting academic research. Modern academic research often spans different disciplinary fields, requiring knowledge and resource support from multiple domains. Libraries can actively collaborate with teachers and researchers from different disciplinary backgrounds to understand their information needs and jointly formulate resource acquisition and management strategies. Such collaborations not only facilitate the provision of diversified information resources but also foster knowledge exchange and the development of interdisciplinary research. Resource integration is critical for the efficient use of library resources. Collaborative partners can co-build and manage digital resources, including e-books, journal databases, research data, and more. This helps eliminate redundant purchases and waste, enhancing the utilization of literature resources. Additionally, through shared digital resources, libraries can offer users a wider range of information access pathways, increasing their opportunities for accessing information. Furthermore, collaboration with other university libraries is also part of resource integration. Universities can leverage their own platform advantages to establish a network of library resource sharing that spans across universities, covering a global scope, providing users with rich literature information security services.

6.2 User-Engaged Community Building

User-engaged community building is a vital innovative model in academic library and information services. It not only enhances user satisfaction but also creates a more dynamic and interactive academic community. Libraries can actively collect user needs and opinions through regular user satisfaction surveys, feedback channels, or user focus groups to better understand their expectations and provide high-quality information services. User engagement also fosters a sense of participation and belonging among users, making them more willing to actively participate in library activities. Community building promotes academic exchange and collaboration. Libraries can establish virtual or physical communities, bringing together users with similar interests and academic backgrounds, facilitating academic communication and collaboration among them, helping users share resources and exchange experiences. Communities can also serve as platforms for discussing academic topics, organizing seminars, and research projects, contributing to academic innovation and knowledge dissemination. Additionally, social media platforms and online forums are essential tools for user interaction. Libraries can actively participate in social media, promptly sharing information about the

latest cutting-edge resources, service updates, and academic events with users, helping create a positive academic community atmosphere.

6.3 Digital Humanities and Digital Anthropology Applications

Digital humanities and digital anthropology applications are essential innovative models in academic library and information services. They combine humanities disciplines with modern technology, providing new possibilities for academic research and education. Digital humanities and digital anthropology can drive the digital transformation of humanities disciplines. Traditional humanities research often relies on printed literature and on-site investigations. Digital humanities leverage digital tools and methods to digitize and process various data types, such as literature, archives, geographic information, enabling more in-depth and comprehensive analysis of humanities materials. Libraries should strongly support digital humanities projects, providing digital resources and technological support to help scholars conduct digital humanities research effectively and advance interdisciplinary studies. Through interdisciplinary research, humanities disciplines can be combined with natural sciences, social sciences, and other fields to address complex social and cultural issues. Libraries should also offer interdisciplinary resource learning and training, encouraging scholars from different disciplinary backgrounds to cooperate, promoting knowledge exchange and innovation. Furthermore, libraries can collaborate with museums, archives, and other cultural institutions to digitize and preserve precious cultural heritage using advanced technology, making it more accessible and researchable by a wider audience. This helps protect cultural heritage, enrich library resources, and better inherit and promote excellent traditional Chinese culture.

7. Conclusion

In the new era, academic library and information services are facing a rapidly changing information environment and diverse user demands. Therefore, continuous innovation and learning are essential to maintain their significance in the field of higher education. This study has delved into the development history, characteristics, transformations, core contents and methods, personnel qualifications and training, as well as innovative models of academic library and information services. Academic library and information services have evolved from traditional literature management and information storage towards digitization, smart technology adoption, and user-centric services. This signifies that libraries must actively embrace innovative technologies, understand user needs, manage digital resources, and cultivate a diverse skill set among their staff. Moreover, innovative models such as interdisciplinary collaboration, resource integration, user engagement, and community building provide libraries with more opportunities to better meet user demands and promote knowledge innovation.

In summary, academic library and information services play a pivotal role in the new era. They not only provide support for academic research and education but also contribute to knowledge dissemination and community development. To continue fulfilling this role effectively, university libraries must persistently innovate, embrace change, and continuously enhance their capabilities and qualifications. They must continue to play a crucial role in the knowledge society by promoting academic innovation and societal progress and development.

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