

Application of Network Technology in University Library Management

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Abstract: *With the continuous development of information technology, the integration of network technology has become pervasive in university library management. This comprehensive study delves into the current landscape of network technology implementation in university libraries, exploring its multifaceted applications and evaluating its impact on various aspects of management. By examining the existing challenges faced by university libraries in harnessing the full potential of network technology, this paper strategically proposes innovative solutions to enhance operational efficiency and elevate the quality of services provided. The research focuses on streamlining processes, facilitating seamless access to digital resources, optimizing information retrieval systems, and fostering collaboration among library users. The ultimate goal is to transform university library management into a dynamic, user-oriented system that effectively meets the evolving needs of students, researchers, and educators in the digital age.*

Keywords: *University Library; Network Technology; Management; Application*

1. Introduction

With the rapid development of information technology, network technology has profoundly influenced and penetrated the management of university libraries, becoming an important tool to improve the quality of library services and management efficiency. As a core institution supporting academic research and talent cultivation, the level of management of university libraries is directly related to the improvement of education quality and academic standards. The application of network technology not only enables libraries to provide a richer and more diverse range of services, such as bibliographic retrieval, access to electronic resources, and remote consultation, but also greatly optimizes the internal management processes of libraries, improving work efficiency. However, the rapid update of network technology, prominent security risks, and the mismatch of library staff's network skills also pose new challenges to university library management. Therefore, it is of great theoretical and practical significance to analyze the current status of the application of network technology in university library management, identify existing problems, and propose practical solutions to promote the comprehensive improvement of university library service capabilities and management levels. This study is based on this background and needs, aiming to provide strong reference and support for the modernization of university library management.

2. Library Collection Management

2.1. Electronic Catalogs and Resource Sharing

In the realm of collection management within university libraries, the application of network technology stands out as a particularly significant development, marking a transformative shift towards greater efficiency and accessibility. The creation of comprehensive electronic catalog systems has enabled the digitization and networked accessibility of collection information, allowing readers to effortlessly access detailed book information and check its availability from any location at any time. This advancement has streamlined the search and retrieval process for users, significantly enhancing the overall efficiency and effectiveness of library services. The introduction of network technology has also opened doors to unparalleled levels of resource sharing among various university libraries. Through interconnected library networks, readers can now access and borrow books from other institutions directly via their own library's platform. This expansion of available reading options for users, combined with the optimal utilization of collective book resources across libraries, has led to a

marked increase in the overall efficiency of resource utilization. This shift towards a more interconnected and user-focused model of library services highlights the transformative role of network technology in academic libraries, establishing a new benchmark for accessibility, efficiency, and collaborative resource sharing[1].

2.2. E-books and Digital Resource Management

With the increasing richness of e-books and digital resources, university libraries are also constantly strengthening their management work in this area. Using network technology for efficient procurement, classification, storage, and retrieval provides readers with richer and more convenient reading choices. At the same time, network technology also plays an important role in the safety management of collections. Using modern means such as network cameras and RFID technology, libraries can monitor the security status of the collections in real-time, effectively preventing the risk of books being stolen or damaged, ensuring the safety of collections. However, the rapid update of network technology also puts forward higher skill requirements for library staff, which requires libraries to strengthen training and education for employees, ensuring that they can master and use network technology proficiently to better serve readers and improve the overall management level of the library.

3. Reader Services

3.1. Online Consultation and Reference Services

In today's digital age, university libraries are expanding their horizons, moving beyond traditional boundaries to introduce a cutting-edge and accessible online consultation platform. This platform enables real-time interaction between users and library professionals, providing access to a vast array of reference materials and expert advice, regardless of geographical location or time. This shift in service delivery dramatically enhances the speed and accessibility of library services, breaking down previous limitations set by time and space. The platform demonstrates the library's dedication to adopting digital solutions to improve user experience and service efficiency. Additionally, this interactive platform serves as a crucial tool for libraries, offering direct insight into the varied needs and preferences of their users. The valuable data collected from user interactions can be thoroughly analyzed to identify patterns and user behavior, guiding libraries in refining their services and resource distribution to better suit the unique needs of their community[2]. This strategic implementation of online consultation and reference services represents a significant advancement in the evolution of library services, positioning libraries as leaders in innovation. It ensures the delivery of high-quality, adaptable, and responsive services, meeting the dynamic needs and expectations of users.

3.2. Promotion and Utilization of Electronic Resources

The digital revolution has ushered in a new era for university libraries, marked by an abundance of electronic resources ranging from e-books and online journals to diverse databases. Harnessing the power of network technology, libraries are now equipped to showcase these digital treasures to their readers, ensuring that these resources are not just visible but also actively utilized. Engaging in various online promotional activities, libraries encourage readers to explore and make the most of these digital assets, thereby enriching their learning and research experiences. These initiatives not only increase the visibility of electronic resources but also foster a culture of active engagement and exploration among the user community. Moreover, by meticulously analyzing user interactions with electronic resources, libraries gain valuable insights into usage patterns and preferences. This data-driven approach enables libraries to evaluate the effectiveness of their electronic collections, ensuring that resources are aligned with user needs and expectations. Timely adjustments and optimizations can be made to the electronic resource portfolio, enhancing both the efficiency and the quality of resource utilization, and ultimately contributing to a more robust and user-centric library experience.

3.3. Self-service and Mobile Services

Using network technology, university libraries provide readers with a series of convenient self-service options, greatly improving the efficiency and convenience of services. Readers can easily complete operations such as borrowing and returning books, renewing, and account inquiries through the library's self-service equipment or online platforms, greatly reducing their dependence on library

staff. With the development of mobile Internet, libraries have also launched mobile services. Through mobile apps or WeChat mini-programs, readers can access library services anytime, anywhere, perform bibliographic searches, reserve books, etc., greatly improving the convenience and timeliness of services. This not only meets the needs of modern readers for efficient and convenient services but also provides libraries with new service channels and models, enhancing the library's service capabilities in the digital age.

4. Electronic Resource Management

4.1. Procurement and Classification of Electronic Resources

In the context of the digital age, electronic resources have become an indispensable part of the resource system of university libraries, and their management work has become increasingly important. Libraries need to rely on network technology to achieve efficient procurement and accurate classification of electronic resources. This involves online communication and negotiation with numerous electronic resource suppliers, carefully selecting high-quality, content-rich electronic books, databases, and online journals. In addition, libraries also need to use advanced classification and tagging systems to systematically organize and classify these electronic resources, ensuring that each resource is accurately labeled, facilitating readers to quickly find the required content in the vast amount of information.

4.2. Storage and Protection of Electronic Resources

In the realm of digital librarianship, network technology stands as a pivotal force, playing an indispensable role in the meticulous storage and robust protection of electronic resources. To guarantee the unwavering security and steadfast stability of these digital assets, libraries are compelled to invest in top-tier servers and state-of-the-art storage solutions. Furthermore, they must employ cutting-edge data backup technologies, meticulously crafted to minimize any potential risks associated with data loss or corruption. Simultaneously, as guardians of intellectual property, libraries bear the responsibility of safeguarding the legitimate rights and interests of copyright holders. This necessitates the implementation of stringent measures to thwart any attempts at unauthorized copying or dissemination of resources. Technical solutions such as Digital Rights Management (DRM) are paramount in this regard, as they provide a secure means to encrypt and meticulously control access to electronic resources. This ensures the preservation of content integrity and security, fortifying the library's reputation as a trustworthy and reliable custodian of knowledge. By adopting such comprehensive and proactive measures, libraries not only uphold their commitment to protecting the interests of copyright holders but also reinforce their own standing as reputable and dependable institutions. This, in turn, fosters a culture of trust and integrity, ensuring that electronic resources are preserved, protected, and accessible for future generations of scholars and learners.

4.3. Promotion and Services of Electronic Resources

To let more readers know about and use electronic resources, university libraries also need to use network technology to effectively promote electronic resources. This can be done through establishing online display platforms, sending email notifications, posting information on social media, etc. In addition, libraries also need to provide high-quality electronic resource services, including online reading, downloading, consultation, etc., to meet the diverse needs of readers. The application of network technology greatly improves the efficiency and quality of electronic resource management in university libraries, ensuring the security and availability of resources, while also expanding the scope of services, better meeting the needs of readers. However, with the continuous development of technology and the increasing variety of electronic resources, library staff need to continuously improve their professional skills to ensure efficient management and full utilization of these valuable resources[3].

5. Self-service Facilities

5.1. Self-service Borrowing and Returning Machines

As one of the most common self-service facilities in university libraries, self-service borrowing and

returning machines greatly facilitate the borrowing process for readers. Readers can complete the entire process of borrowing and returning books on their own through simple operations, without waiting in line for assistance from library staff. This not only greatly improves the service experience for readers but also effectively improves the service efficiency of the library. With the support of network technology, self-service borrowing and returning machines can update the borrowing and returning status and inventory information of books in real-time, ensuring the accuracy and timeliness of information, and reducing the workload of library staff in book management.

The introduction of self-service inquiry terminals has significantly transformed the interaction between readers and library resources, providing a straightforward and accessible platform for information retrieval. These advanced machines enable users to quickly find necessary book information and collection locations through various methods such as keyword entry and barcode scanning, which markedly improves the efficiency of information retrieval. These terminals meet the readers' demand for swift and efficient retrieval services, and simultaneously, they reduce the workload of library staff in information consultation. The integration of network technology into these self-service inquiry machines further enhances their functionality, allowing for additional services such as book recommendations, display of the latest collection information, and more, which altogether elevate the service standards of the library. By streamlining the information retrieval process and offering a range of value-added services, self-service inquiry terminals exemplify the library's commitment to leveraging technology to enhance user experience and operational efficiency[4].

5.2. Self-service Printing and Copying Equipment

The installation of self-service printing and copying equipment provides great convenience for readers. They can send documents to printers through the network and then complete printing and copying work in the library through self-service equipment. This not only saves time for readers but also improves the utilization rate of library resources. The introduction of self-service facilities greatly improves the service level of university libraries, meeting the needs of readers for efficient and convenient services. However, with the continuous update of technology, libraries also need to regularly maintain and upgrade these devices to ensure their normal operation and continue to provide high-quality services to readers. At the same time, library staff also need to receive relevant training to be able to handle problems in a timely manner when equipment issues arise, ensuring the continuity of services.

6. Problems in the Application of Network Technology in University Library Management

6.1. Rapid Technology Updates, Difficult Equipment Maintenance

Under the wave of digitization and informatization, the speed of updating and upgrading network technology is extremely rapid, and new technologies and equipment emerge in an endless stream. This is both an opportunity and a challenge for university libraries, which must keep up with the pace of technology, continuously update and optimize their own technical equipment to ensure the provision of efficient and modern services. However, this process is often accompanied by huge capital investment and complex technical maintenance work. Especially for those university libraries with limited financial budgets, the lack of funds has become an insurmountable obstacle for them. At the same time, the maintenance and troubleshooting of equipment rely on professional technicians, which not only puts forward higher requirements for the library's human resource allocation but also increases the operating costs of the library[5].

6.2. Prominent Network Security Issues

With the widespread application of network technology in library management, network security issues have become particularly important and urgent. Libraries store a large amount of electronic resources and user personal information internally, and the security of these sensitive data is directly related to the reputation of the library and the interests of users. Therefore, establishing a sound network security protection mechanism, preventing various network attacks and data leakage incidents, has become an indispensable part of library management work. However, with the continuous advancement of hacker technology and the continuous upgrading of network attack methods, the network security threats faced by libraries are becoming more and more severe. This requires libraries to invest more human and material resources, continuously strengthen network security protection, and

ensure the absolute security of user data and the integrity of library electronic resources.

6.3. Lag in Staff Skill Enhancement

The application of network technology requires library staff to possess corresponding skills and knowledge. However, due to limited training opportunities or a mismatch between training content and actual work requirements, the enhancement of library staff's skills in the application of network technology often lags behind. This not only affects the quality of library services but also limits the role of network technology in library management. Although university libraries have achieved significant results in the application of network technology, they still face challenges such as difficulties in equipment maintenance, prominent network security issues, and lag in staff skill enhancement. Solving these problems requires the joint efforts of libraries, universities, and relevant departments, increased investment, strengthened training, and enhancement of library staff's ability to apply network technology to ensure that network technology plays its maximum role in the management of university libraries.

7. Strategies to Enhance the Application of Network Technology in University Library Management

7.1. Strengthening the Update and Maintenance of Network Technology

To ensure that the network technology of university libraries keeps pace with the times and meets the growing service demands, libraries must invest the necessary human and material resources to regularly upgrade and maintain network technology and related equipment. This includes introducing the latest hardware devices and software applications, as well as regularly checking and updating existing equipment to ensure its stable operation and superior performance. To this end, libraries need to establish a professional technical maintenance team responsible for monitoring the operating status of the network system, promptly identifying and resolving potential issues, and ensuring the continuity and stability of network services. In addition, libraries should also remain sensitive to the development trends of network technology, actively introduce new technologies, and continuously improve service quality and management efficiency[6].

7.2. Cultivating Advanced Network Competencies among Library Personnel

Mastering network technology is crucial for library staff, as it directly influences their ability to engage actively and provide proficient services. Enhancing the network skills of library personnel is therefore a critical component in raising the library's service quality. Libraries need to initiate and maintain comprehensive training programs to ensure that every staff member is not only proficient in basic computer operations but also capable of effectively utilizing network resources for tasks such as information retrieval and resource management. At the same time, libraries should prioritize the recruitment and development of network technology specialists. Harnessing their extensive professional knowledge and advanced skills can create a culture of continuous innovation and improvement in the application of network technology within the library. This strategic investment not only moves the library towards operational excellence but also plays a vital role in refining library services to meet current standards and user expectations[7]. By committing to the ongoing professional development of library staff and integrating network technology expertise, libraries establish a robust foundation for service excellence and technological advancement. This commitment not only enhances the overall user experience but also contributes significantly to the library's success in the digital era.

7.3. Strengthening Network Security Management

In today's era of continuous development of network technology, network security has become an important link in library management that cannot be ignored. Libraries must establish a complete network security management system, adopt advanced technical means and management strategies to effectively prevent network attacks, data leakage, and other security risks. This includes regularly checking network equipment for security, encrypting sensitive data, and establishing a comprehensive data backup and disaster recovery mechanism to ensure that the library can take prompt countermeasures in the face of security threats, minimizing potential losses. Through these measures, libraries can provide readers with a safe and reliable network service environment, winning their trust

and satisfaction.

7.4. Optimizing Resource Integration and Improving Service Quality

The application of network technology provides possibilities for the integration of library resources. Libraries need to use network technology to optimize the integration of collection resources and improve the utilization rate of resources. This includes establishing a unified resource retrieval platform, realizing one-stop retrieval of different types and formats of resources, and converting paper resources into electronic resources through digital technology to facilitate online access by users. At the same time, libraries can also use network technology to provide personalized services, such as personalized booklist recommendations, online consultation services, etc., to meet the individual needs of users and improve service quality. To enhance the level of application of network technology in university library management, comprehensive strategies and measures need to be taken from aspects such as technology update and maintenance, staff skill enhancement, network security management, and resource service optimization to ensure that network technology plays its maximum role in library management and better serves teachers and students[8].

8. Conclusion

The in-depth application of network technology has greatly promoted the modernization of university library management, improved service capabilities, and management efficiency. Although there are challenges such as difficulties in equipment maintenance, network security issues, and lag in staff skill enhancement, we are confident that through joint efforts, increased investment, and strengthened training, we can overcome these difficulties, continuously optimize the application of network technology, and enable university libraries to better serve teachers and students, providing strong support for academic research and talent cultivation, and promoting the construction of a learning society and the development of scientific culture and knowledge. However, due to limited training opportunities or training content that does not match actual work needs, the improvement of library staff's skills in the application of network technology often lags behind. This not only affects the quality of library services but also limits the role of network technology in library management. University libraries have achieved remarkable results in the application of network technology, but still face challenges such as difficult equipment maintenance, prominent network security issues, and lagging skill improvement of staff. Solving these problems requires joint efforts from libraries, universities, and relevant departments.

References

- [1] Lu Chunhui. *Research on innovative approaches of University Library Archives Management under Network environment* [J]. *Archives of Heilongjiang Province*, 2022(03):273-275.
- [2] Chen Qifang. *Research on Optimization and Innovation of Reader Service and Management in University Library under Network Environment -- taking Circulation Reading Department as an example* [J]. *Journal of Hunan Polytechnic of Posts and Telecommunications*, 2018, 17(01):82-84.
- [3] Guo Wenhui. *Management of Chinese paper periodical subscription in University library under network environment* [J]. *Heilongjiang Archives*, 2022(01):309-311.
- [4] Yan Changmao. *Application and Practice of 6S Management Model in University Library Network Management* [J]. *Journal of Henan Library*, 21, 41(06):46-48.
- [5] Yan Changmao. *Research on the construction and management of green health network of University library in "Internet +" era* [J]. *Journal of Changsha University*, 2019, 34(06):105-109.
- [6] Liang F. *Research on Management of paper back issues of University libraries in the Network Information Age* [J]. *Digital Communications World*, 2020(11):271-272.
- [7] Li Li. *University Library Management Innovation based on Network environment* [J]. *Time-honored Brand Marketing*, 2020(04):36-37. (in Chinese)
- [8] Cui Haihong. *A Brief discussion on the Efficient Management Innovation of University libraries in the Network era* [J]. *Education and Teaching Forum*, 2018(45):9-10.