

## Postprint: Construction of Evaluation Index System for Mobile Library Systems

**Authors:** Yang Cen, Shao Bo

**Date:** 2023-04-01T16:02:52+00:00

### Abstract

[Purpose/Significance] From the perspective of user experience, this study constructs an evaluation system that integrates indicators affecting service quality, service capability, and service satisfaction, aiming to guide mobile library systems in improving user services. [Method/Process] By integrating existing research literature and relevant online reviews, and following expert discussions, 16 indicators across four categories were selected to construct a mobile library system evaluation index system based on user experience. The Analytic Hierarchy Process (AHP) was then employed to determine the weights of these evaluation indicators. [Results/Conclusion] Mobile library systems should increase the supply of electronic databases and multimedia resources to meet users' demands for digital information resources; they should further improve functions such as online downloading and online reading to help users effectively utilize collection resources for their work and study; and they should continuously optimize system performance and human-computer interaction interfaces to simplify operational logic and enhance user experience.

### Full Text

#### Preamble

#### Construction of an Evaluation Index System for Mobile Library Systems

**Yang Cen**<sup>1</sup>, **Shao Bo**<sup>2</sup> <sup>1</sup>School of Economics and Management, Nanjing Agricultural University, Nanjing 210095 <sup>2</sup>School of Information Management, Nanjing University, Nanjing 210023

**Abstract:** [Purpose/Significance] From the perspective of user experience, this study constructs an evaluation system that integrates indicators affecting service quality, service capability, and service satisfaction, aiming to guide mobile library systems in improving user services. [Method/Process] Based on

existing research literature and relevant online reviews, and after discussion with experts, we selected 16 indicators across four categories to build a user experience-based evaluation index system for mobile library systems, and then used the Analytic Hierarchy Process (AHP) to determine the weights of these evaluation indicators. **[Result/Conclusion]** Mobile library systems should increase the supply of electronic databases and multimedia resources to meet users' demands for digital information resources. They should further improve functions such as online downloading and online reading to help users effectively utilize collection resources for their work and study. Additionally, mobile library systems must continuously optimize system performance and human-computer interaction interfaces to simplify operational logic and enhance user experience.

**Keywords:** mobile library system; user experience; evaluation index system

**Classification Number:** G250.7

**DOI:** 10.13266/j.issn.0252-3116.2021.12.006

Through mobile devices, people can remotely access library services, conveniently search library catalogs, track their borrowing status, and instantly query and download electronic resources. Consequently, mobile library services have become one of the most commonly used library service models. However, due to the wide variety of mobile device types and screen sizes, if mobile library system design fails to account for these differences, it will not only directly affect people's ability to use the library system via mobile devices but also directly impact user experience. Therefore, it is necessary to examine, from a user experience perspective, the relative importance of different factors influencing user adoption and continued use of mobile library systems, and to accordingly optimize mobile library system design to enhance service quality and user satisfaction.

## 2 Literature Review

As people increasingly access library systems through mobile devices, issues related to mobile libraries have attracted scholarly attention. Research has primarily focused on two aspects:

### 2.1 Mobile Library System Design and Recommendation System Construction

**First, research on mobile library system design.** After analyzing two mobile information service models—SMS services and WAP services—Hu Changping et al. proposed a cross-system cloud service model framework for mobile users in digital libraries, and described the implementation of functional modules such as platform navigation, online reading, resource retrieval, reference consultation, and book reservation across four layers: portal, application, management, and adaptation [1]. Zeng Li constructed a functional model including electronic resources, book queries, and reference consultation from both administrator and user perspectives based on user needs analysis, and analyzed its operational model [2]. Additionally, Jiang Bo et al. built a basic architec-

ture for a WeChat-based mobile library app service system and implemented functions including SMS messaging, MMS multimedia messaging, and mobile website services [3].

**Second, research on mobile library recommendation system construction.** Li Jingyun discussed the design of a context-aware knowledge recommendation system for mobile libraries [4]. Liu Haiou et al. not only constructed a contextual recommendation system for mobile digital libraries based on situational interest modeling but also conducted experimental verification [5]. Furthermore, She Jingtao et al. shared their experience in implementing RSS-based new book recommendation services on mobile phones, using the Zhejiang University of Technology Library's new book recommendation service as an example [6].

**Third, evaluation of mobile library cloud bookshelf systems.** P. S. Chiu et al. developed a cloud-based e-bookshelf system and evaluated users' usage intentions and satisfaction using the Information Systems Success Model [7]. C. F. Lai et al. developed a mobile library cloud bookshelf system and evaluated it from four aspects—system quality, information quality, service quality, and user satisfaction—finding that the system could meet user needs [8].

## 2.2 Research on Mobile Library User Needs, Service Quality Evaluation, Usability Evaluation, Service Capability Evaluation, and User Experience Evaluation

**First, research on mobile library user needs.** Li Yujia et al. used system dynamics to analyze the interrelationships and dynamic changes among factors affecting mobile library user needs, and proposed improvement suggestions from four aspects: sensory experience design, information resource design, interaction design, and emotional design [9].

**Second, research on mobile library service quality evaluation.** Chu Zhaohui selected 15 secondary indicators including resource richness and collection retrievability from four dimensions—information resources, service environment, interaction quality, and service effectiveness—to construct a mobile library service quality evaluation index system [10]. Zhang Chunlei chose 16 secondary indicators including content richness, mobile device adaptability, responsiveness, and ease of use from four aspects—content quality, environmental quality, interaction quality, and outcome quality—to construct a university mobile library service quality evaluation index system [11]. Additionally, Ming Junren et al., based on interviews and grounded theory analysis, obtained a series of indicators covering environmental quality, interaction quality, information quality, and retrieval quality. Through empirical research, they found that 10 secondary indicators including interface design and information richness were factors influencing mobile library service quality [12].

**Third, research on mobile library usability and service capability.** Yuan Jing et al. constructed a mobile library usability evaluation index system

with 14 secondary indicators including navigation and help functions and resource accessibility from four aspects: ease of use, effectiveness, efficiency, and service effectiveness [13]. Chen Sheng evaluated the usability of the Shanghai Library's mobile library from six aspects: learnability, ease of use, effectiveness, errors and feedback, layout and settings, and subjective satisfaction [14]. Additionally, Wang Weijun constructed a mobile library service capability evaluation index system with 10 secondary indicators including information resource quality, service functions, and service effectiveness from five dimensions: information resource construction status, mobile technology support status, service personnel status, user needs acquisition, and service process management [15]. R. Fung et al. used J. Nielsen's 10 usability principles [16] to evaluate the usability of the University of Hong Kong Libraries' mobile website, identifying issues such as failure to inform users of waiting times, illogical information display, inconsistent information presentation, and lack of advanced search functionality [17].

**Fourth, research on mobile library user experience and satisfaction.**

Yao Yuan et al. empirically found that mobile library user experience is sequentially influenced by functional experience, emotional experience, interactive experience, and sensory experience [18]. Wei Qunyi et al. constructed a mobile library user experience evaluation index system from five aspects—sensory experience, interactive experience, functional experience, emotional experience, and social influence—and found that literature retrieval, cloud reading, and perceived usefulness were three important indicators affecting mobile library user experience [19]. Additionally, Gan Chunmei found that usefulness confirmation, performance confirmation, and perceived pleasure were important factors affecting mobile library satisfaction [20]. Y. M. Huang et al. used the Information Systems Success Model to evaluate the usage status and satisfaction of Taiwan's mobile library services [21].

From the above analysis, although valuable research results have emerged on mobile library-related issues, and user needs and experience have received attention from some scholars, comparison of the evaluation index systems constructed in these literatures reveals significant differences, indicating that the academic community has not yet reached a consensus on how to evaluate mobile library systems. Moreover, existing literature has three aspects that urgently need improvement: First, most literature treats resource richness as a whole in the evaluation system, but users generally place greater emphasis on digital resources in mobile libraries. Therefore, subdividing resources and introducing them into the evaluation system would help libraries establish correct perspectives on collection development. Second, existing literature attaches great importance to mobile library function construction. Although current mobile libraries provide both basic and advanced search functions, no research has examined whether users need both functions simultaneously. Additionally, only a few studies have included online downloading and reading functions in their evaluation systems. Third, although a few evaluation systems incorporate responsiveness and adaptability of mobile library systems, no study has treated mobile library system

performance and security experience as a first-level indicator and introduced it into the evaluation system after subdivision.

Therefore, to provide a practical reference for libraries to optimize their mobile library service systems, this study not only selects valuable indicators from previous research that affect service quality, service capability, and service satisfaction from a user experience perspective, but also introduces crucial indicators for mobile library service systems such as “types and quantities of electronic databases,” “types and quantities of digital multimedia resources,” “online basic search function,” and “online advanced search function” to construct a new evaluation index system for mobile library systems comprising four first-level indicators: system resource richness experience, system function completeness experience, system interface usability experience, and system performance and security experience.

### 3 Selection of Evaluation Indicators for Mobile Library Systems

Based on the principles of representativeness and advancement, this study first selected the National Library of China, Shanghai Library, Peking University Library, and Tsinghua University Library, and crawled user reviews from online forums such as Zhihu, Weibo, and Baidu Tieba to construct a word cloud (see Figure 1 [Figure 1: see original paper]). Second, we invited three senior users, two mobile library technicians, and one library and information science researcher as experts to access these four libraries’ mobile systems with us and discuss indicators affecting user experience. Finally, combining common indicators selected in most existing literature and common issues mentioned in relevant forums, we selected 16 indicators from four aspects—system resource richness experience, system function completeness experience, system interface usability experience, and system performance and security experience—to construct the mobile library system evaluation index system (see Figure 2 [Figure 2: see original paper]).

Compared with previous research, this study has three main characteristics: First, it introduces system resource richness experience and system performance and security experience as first-level indicators and subdivides them to examine their impact on user experience. Second, although previous literature also included system function completeness experience as a first-level indicator [15, 19], this study introduces online downloading and reading functions and subdivides search functions into basic and advanced search functions to examine their impact on user experience. Third, although previous literature also addressed system interface usability experience [14, 19], this study introduces system interface layout aesthetics and system navigation clarity as subdivided secondary indicators to examine their impact on user experience.

### 3.1 System Resource Richness Experience (A1)

System resource richness experience in mobile library systems refers to users' direct perception of whether various forms of resources—including books, journals, electronic databases, and multimedia—can meet their information needs in learning and work scenarios. As a public resource platform with cultural, entertainment, and educational attributes, the richness and quality of mobile library system resources directly affect whether users can find the documents they need, making “system resource richness experience” one of the important indicators affecting mobile library user experience [10, 22]. To fully reveal the richness of mobile library system resources, this study selected four secondary indicators: “types and quantities of paper books (A11),” “types and quantities of paper journals (A12),” “types and quantities of electronic databases (A13),” and “types and quantities of multimedia resources (A14).”

### 3.2 System Function Completeness Experience (A2)

System function completeness experience refers to users' direct perception of whether the system meets all required business functions. In the mobile service environment, users not only expect mobile library systems to have functions for online reservation of library visits, seat selection, and book borrowing, but also require online consultation services and optional basic search, advanced search, or even one-stop search functions [23]. Additionally, users demand functions such as online resource downloading, online document delivery, and online reading. Therefore, in the mobile service environment, “online reservation function (A21),” “online consultation function (A22),” “online basic search function (A23),” “online advanced search function (A24),” and “online downloading and reading function (A25)” affect users' experience of system function completeness.

### 3.3 System Interface Usability Experience (A3)

In the mobile service environment, the mobile library system interface serves as the interaction channel and information transmission medium between the system and users, significantly influencing user experience. The user interface of mobile library systems must not only follow design principles for online service systems but also reflect regional or organizational cultural characteristics and the convenience features of public resources. For example, Tsinghua University's mobile library system features a very aesthetically pleasing and clear design, with prominent navigation bars that enable visitors to find desired functions immediately. Considering that users require not only simple, clear, and aesthetically pleasing interface layouts but also fast and easy-to-understand operation interfaces and prominent, orderly navigation, this study selected “system interface layout aesthetics (A31),” “system interface ease of use (A32),” and “system navigation clarity (A33)” as secondary indicators.

### 3.4 System Performance and Security Experience (A4)

System performance and security experience refers to users' direct perception of information transmission smoothness, performance stability, response speed, and whether system pages automatically adjust layout and formatting according to mobile device type or browser during mobile library system usage. System performance and security are fundamental attributes of mobile library systems that directly affect whether users can use them normally [10, 24]. Therefore, this study selected four indicators as secondary measures: "system fluency (A41)," "system stability (A42)," "system response speed (A43)," and "system adaptability (A44)."

## 4 Determination of Weights for Mobile Library System Evaluation Indicators

To determine the weights of mobile library system evaluation indicators from the user experience perspective, this study invited 30 experienced senior users with extensive experience using multiple mobile library systems. After training them in the Analytic Hierarchy Process, we asked them to conduct pairwise comparisons of indicators under the same criterion using the nine-point scale proposed by AHP founder Professor Saaty, thereby constructing judgment matrices. Table 1 through Table 5 show an example of judgment matrices constructed by one senior user and their calculation results [25]. After collecting data from 30 senior users, we first used YAAHP software to calculate each user's indicator values and then computed the mean values across all 30 users to obtain the final results (see Table 6).

From the first-level evaluation indicators of mobile library systems, "system function completeness experience," "system performance and security experience," and "system resource richness experience" have weights of 0.303, 0.266, and 0.257, respectively, representing the three indicators with the greatest impact on user experience. This is because mobile library system functions and resource conditions largely determine the intensity of users' willingness to use the system, while system performance conditions affect users' willingness to continue using the system long-term. "System interface usability experience" has a weight of 0.174, representing the indicator with the smallest impact on user experience. The authors believe this relatively low user sensitivity to system interface results from two factors: First, with the gradual development of domestic mobile library systems in recent years, system interface usability experience has greatly improved, exceeding users' psychological expectations. Second, for learning or office resource systems like mobile libraries, users have relatively low requirements for interface aesthetics, as long as daily usage needs are met.

Regarding system resource richness experience, "types and quantities of electronic databases" and "types and quantities of multimedia resources" have weights of 0.509 and 0.301, respectively, ranking as the top two indicators

affecting users' system resource richness experience. In contrast, “types and quantities of paper books” and “types and quantities of paper journals” have weights of 0.093 and 0.097, respectively, representing indicators with relatively minor impact. The authors attribute this phenomenon to two factors: On one hand, when accessing mobile library systems, users expect to directly obtain resources, and electronic databases and multimedia resources can directly meet these needs. On the other hand, as the Internet/mobile networks become increasingly pervasive, people have grown accustomed to using digital information resources in their work and study, and have developed more diverse requirements for information presentation formats.

Regarding system function completeness experience, “online downloading and reading function” has a weight of 0.399, representing the indicator with the greatest impact on user experience of system function completeness. The authors attribute this primarily to two factors: First, users accessing mobile library systems via mobile devices expect to directly obtain resources or read online. Second, currently, mobile library systems provide very limited resources for direct downloading and online reading, creating strong user demand. Since online reservation of library visits, seats, and publications has become a daily need for users accessing mobile library systems, “online reservation function” is the second most influential indicator, with a weight of 0.215. “Online basic search function” has a weight of 0.136, making it the third most influential indicator, while “online advanced search function” has a relatively smaller impact on system function completeness experience, with a weight of 0.125. The authors believe this occurs because, on one hand, most mobile devices have relatively small screens that are not convenient for more complex advanced searches, and on the other hand, the online basic search functions currently embedded in mobile library systems already meet the information retrieval needs of the vast majority of users. “Online consultation function,” though a relatively advanced online service function of mobile library systems, also has relatively small impact on user experience of system function completeness (weight of 0.125), which the authors attribute to most users lacking awareness of online library consultation services.

Regarding system interface usability experience, “system interface ease of use” has a weight of 0.485, representing the indicator with the greatest impact on user experience of system interface usability. “System interface layout aesthetics” has a weight of 0.326, making it the second most influential indicator, while “system navigation clarity” has a weight of 0.189, representing the indicator with the smallest impact. This shows that mobile library system users' requirements for system interface are more oriented toward practical utility and have not yet risen to higher levels, with relatively low concern for navigation clarity.

Regarding system performance and security experience, “system adaptability” has a weight of 0.334, representing the indicator with the greatest impact on user experience of system performance. “System fluency” and “system response speed” have weights of 0.298 and 0.289, respectively, representing indicators

with relatively large impact, while “system stability” has a weight of 0.079, representing an indicator with relatively small impact. The authors attribute this result to three factors: First, the wide variety of mobile devices and screen sizes, combined with different client/server programming languages for browsers, and the fact that many mobile library systems are not designed to automatically adjust layout and formatting according to device type or browser, often results in ineffective display of certain functions. Second, as public facilities without commercial platform profit incentives or market competition pressure, mobile library systems lack necessary maintenance and upgrades, leading to insufficient page loading fluency and untimely response to user operations. Third, mobile library systems have relatively simple operational logic, aging servers are gradually being phased out, programming algorithms and languages are continuously optimized, and user device performance has significantly improved in recent years, which have largely resolved system stability issues.

## 5 Research Conclusions and Implications

As evident from the above analysis, mobile library systems should increase the supply of electronic databases and multimedia resources to meet users’ demands for digital information resources. They should further improve functions such as online downloading and online reading to help users effectively utilize collection resources for their work and study. Additionally, mobile library systems must continuously optimize system performance and human-computer interaction interfaces to simplify operational logic and enhance user experience. Based on these conclusions and the problems currently encountered in mobile library system development, the authors propose the following measures to promote mobile library system development.

### 5.1 Multi-pronged Approach to Enrich Digital Resource Collections

Mobile library systems should increase the supply of electronic databases and multimedia resources to meet users’ demands for digital information resources [26]. Like traditional libraries, resource richness is a key factor affecting mobile library system user experience [10]. However, for mobile library system users, the richness of digital resource collections has greater impact on user experience [27]. Compared with the relatively rich paper books and journals owned by many libraries, only a few libraries have substantial electronic databases and multimedia resources and provide online downloading and reading functions. The authors attribute this situation to two main factors: First, some library managers have outdated mindsets—emphasizing paper collection development while neglecting digital collection development. They prefer spending heavily on “visible and tangible” paper resources rather than investing in digital resources or digital resource construction. Second, some libraries have limited financial resources for digital resource construction, and electronic databases are generally expensive while digitizing collection resources is also costly.

Therefore, to enrich digital resource collections in mobile library systems, the

authors propose three measures: First, unlike physical libraries, the value of mobile library system collections depends not only on the types and quantities of paper books and journals collected, but more importantly on the types and quantities of electronic databases and multimedia resources available for online downloading or reading. Therefore, library managers must change their mindset and be willing to allocate funds to purchase or construct digital resources. Library industry associations and library education institutions can help enhance managers' awareness of the importance of digital information resource construction by organizing forums and training programs. Second, regarding digital information resource procurement, the authors suggest that under the leadership of library committees or industry associations, libraries can form alliances for collective bargaining or group purchasing to reduce costs, thereby increasing digital information resource supply for financially constrained libraries. Third, regarding paper resource digitization, libraries can adopt a division-of-labor approach under the coordination of library committees or industry associations, with each library undertaking digitization of certain types of paper resources and then exchanging them to share digital resources. This can significantly reduce digitization costs for individual libraries while increasing their digital information resource supply.

## 5.2 Service-Oriented Continuous Improvement of System Functions

Driven by the rapid development of mobile Internet in recent years, almost all libraries have accelerated mobile library system development with the philosophy of providing users with more convenient and higher-quality services, launching mobile library systems with relatively rich functions. However, based on the preceding analysis and investigation of mobile library systems, the authors identify several remaining issues: First, although "online downloading and reading function" is currently the indicator with the greatest impact on user experience of system function completeness, and scholars have included user downloading and online reading as two important functions in cloud-based mobile digital library cross-system service platforms [1], only some mobile library systems provide this function. Second, although almost all mobile library systems provide "online reservation function" and "online basic search function," the service content needs further enrichment. For example, Shanghai Library only provides online book reservation, when in fact users also need services such as online reservation of library visits and seat selection. Third, only a few mobile library systems provide "online consultation function" and "online advanced search function," and these functions remain to be improved. Although the "online consultation" in the new version of Shanghai Library includes "hot issues," "quick services," and "feedback," the "quick services" are still under construction. Similarly, neither the National Library of China mobile system nor Shanghai Library provides advanced search functionality. Although the preceding analysis also found these two functions have relatively small impact on user experience of system function completeness, as mobile library users' cultural and professional levels continue to improve, the authors believe that an increasing number of users will require

these two functions.

Regarding the improvement of mobile library system functions, the authors suggest attention to two issues: First, under the leadership of library industry associations, experts from academia and industry can collaborate to develop national or industry standards for mobile library systems, using standards to guide and promote functional improvement. Second, functional construction should not be limited to currently socially necessary functions but should build functional construction planning schemes from the perspective of functions that mobile library systems should possess. Of course, with limited financial resources, priority can be given to currently necessary functions, followed by continuous implementation of functional construction planning schemes as times evolve.

### 5.3 Optimize Performance to Enhance User Experience

Although many libraries have launched mobile library systems, these systems have more or less issues in system compatibility, adaptability, stability, and interface friendliness. As analyzed previously, these indicators directly affect mobile library system user experience. Therefore, mobile library systems must take measures to optimize performance and interface to enhance user experience.

Regarding performance and interface optimization, the authors propose two measures: First, to ensure mobile library systems achieve optimal display effects across various types of mobile devices and browsers, developers should not only strive to build adaptive systems during the development phase but also test display effects on as many device models and browsers as possible during the testing phase and continuously optimize. Second, in-depth research should be conducted on user behavior habits when using mobile library systems [24], continuously enhancing system ease of use, interface aesthetics, and navigation clarity from the perspective of simplifying user operational logic.

## References

- [1] Hu Changping, Wan Hua. Construction and implementation of a cross-system service platform for mobile digital libraries in cloud environments [J]. *Journal of the National Library of China*, 2013, 22(2): 40-48.
- [2] Zeng Li. Design and implementation of a university library mobile service system [J]. *Library and Information Service*, 2011, 55(5): 72-74.
- [3] Jiang Bo, Qin Yanmei. Design and implementation of a WeChat-based mobile library app service system [J]. *Modern Information*, 2013, 33(6): 41-44.
- [4] Li Jingyun. Design of a context-aware knowledge recommendation system for mobile libraries [J]. *Library Theory and Practice*, 2013, 35(6): 19-21.
- [5] Liu Haiou, Chen Jing, Sun Jingjing, et al. Research on a big data-oriented contextual recommendation system for mobile digital libraries [J]. *Library Work and Study*, 2018, 40(9): 58-63.
- [6] She Jingtao, Liu Feng. Application and implementation of RSS technology in mobile library new book recommendation systems [J]. *Library and Information Service*, 2012, 56(1): 116-119.
- [7] CHIU P S, CHAO I C, KAO C C, et al. Implementa-

tion and evaluation of mobile e-books in a cloud bookcase using the information system success model [J]. *Library hi tech*, 2016, 34(2): 207-218. [8] LAI C F, ZHONG H X, CHIU P S, et al. Development and evaluation of a cloud bookcase system for mobile library [EB/OL]. [2021-05-20]. <https://doi.org/10.1108/LHT-09-2019-0195>. [9] Li Yujia, Zhang Xiangxian, Zhang Keyong. Research on mobile library user needs from the perspective of user experience—Based on system dynamics method [J]. *Library and Information Service*, 2015, 59(6): 90-96. [10] Chu Zhaohui, Chu Wenjing, Xu Lixiang, et al. Construction of an optimized model for urban mobile library service quality evaluation based on AHP-BP neural network [J]. *Library Science Research*, 2020, 41(10): 19-27. [11] Zhang Chunlei. Construction of a university mobile library service quality evaluation index system based on correlation-principal component analysis [J]. *Library Research*, 2019, 49(2): 42-48. [12] Ming Junren, Cao Huizi. Research on mobile library service quality evaluation based on grounded theory [J]. *Library and Information Service*, 2016, 60(5): 128-135. [13] Yuan Jing, Lu Yangping. Mobile library usability evaluation based on fuzzy comprehensive evaluation method [J]. *Library Theory and Practice*, 2016, 39(1): 100-103. [14] Chen Sheng. Research on the usability of mobile phone libraries—Taking Shanghai mobile library as an example [J]. *Library*, 2013, 41(4): 125-127. [15] Wang Weijun. Research on mobile library service capability evaluation based on usability [J]. *Information Science*, 2016, 34(12): 88-91. [16] NIELSEN J. Finding usability problems through heuristic evaluation [C]//Proceedings of the SIGCHI conference on human factors in computing systems. New York: ACM, 1992: 373-380. [17] FUNG R, CHIU D, KO E, et al. Heuristic usability evaluation of University of Hong Kong libraries' mobile Website [J]. *Journal of academic librarianship*, 2016, 42(5): 581-594. [18] Yao Yuan, Xu Tiancai. Research on the structural model of mobile library user experience evaluation [J]. *Journal of the National Library of China*, 2018, 27(5): 32-43. [19] Wei Qunyi, Li Yiting, Yao Yuan. Research on mobile library user experience evaluation index system—Taking Chongqing University WeChat library platform as an example [J]. *Journal of the National Library of China*, 2018, 27(5): 21-31. [20] Gan Chunmei. Research on mobile library continuous usage intention from the perspective of post-use evaluation [J]. *Information Science*, 2017, 35(1): 139-143. [21] HUANG Y M, PU Y H, CHEN T S, et al. Development and evaluation of the mobile library service system success model: a case study of Taiwan [J]. *The electronic library*, 1983, 33(6): 1174-1192. [22] Wu Ruiyuan, Xu Qiang. Research on university mobile library service quality evaluation based on ANP-Fuzzy model [J]. *Information Magazine*, 2016, 35(5): 155-160. [23] Zhao Yang. Research on mobile library information service quality control system [J]. *Library and Information Service*, 2013, 57(18): 61-66. [24] Shen Guangbao, Wen Hanrong. Multi-level fuzzy comprehensive evaluation of university library mobile service quality [J]. *Modern Information*, 2015, 35(10): 157-160. [25] Zhu Qinghua, Chen Ming. *Information Analysis: Fundamentals, Methods, and Applications*. Beijing: Science Press, 2004: 206-215. [26] Wang Jingjing. Research on university mobile digital library service quality evaluation based on CSI [J]. *Modern Information*, 2016, 36(8): 32-36. [27] Gao Haitao, Xu Kaiying, Sheng Panpan, et al. Re-

search on university mobile library service quality evaluation model based on AHP-DEA [J]. *Information Science*, 2016, 34(12): 88-91.

**Author Contributions:** Yang Cen: Research design, paper writing and revision; Shao Bo: Research concept, research design confirmation, paper revision suggestions.

### **Construction of Evaluation Index System of Mobile Library System**

Yang Cen<sup>1</sup> Shao Bo<sup>2</sup> <sup>1</sup>School of Economics and Management, Nanjing Agricultural University, Nanjing 210095 <sup>2</sup>School of Information Management, Nanjing University, Nanjing 210023

**Abstract:** [Purpose/significance] From the perspective of user experience, the paper integrates the indicators that affect service quality, service capabilities and service satisfaction to construct an evaluation index system to guide mobile library system providers to improve their products. [Method/process] Based on previous literature and related reviews, after discussing with some experts, 16 indicators in four categories were selected to construct an evaluation index system for mobile library system from the perspective of user experience, and then used Analytic Hierarchy Process to determine the weight of these indicators. [Result/conclusion] The mobile library system should increase the supply of electronic databases and multimedia resources to meet the needs of users for digital information resources. The mobile library system should further improve the functions of online downloading and online reading, so as to help users effectively use the collection resources to serve their work and study. The mobile library system should continuously optimize system performance and human-computer interaction interface, thereby simplifying the operation logic and improving the user experience.

**Keywords:** mobile library system; user experience; evaluation index system

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

*Source: ChinaXiv — Machine translation. Verify with original.*