A Literature Review on Factors Influencing Intention to Use Digital Libraries (Postprint)

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Abstract

[Purpose/Significance] This study systematically reviews domestic and international research findings on the factors influencing digital library user usage intention, providing a reference for digital library construction practice and theoretical research on user behavior. [Method/Process] Through investigating relevant literature on digital library user acceptance, adoption, and continued use, this paper summarizes the theoretical models of digital library user usage intention and analyzes the processes of attitude and behavior change among users as well as the influencing factors during digital library usage. [Results/Conclusions] TAM is widely applied in research on digital library user usage intention. Individual factors, system factors, contextual factors, and cognitive factors are the primary aspects affecting user usage intention. However, the specific processes and patterns of influence remain to be further explored and verified. Future research should innovate and improve upon existing findings from perspectives including model construction, research viewpoints, and research methods to formulate a domain-specific theoretical model of user usage intention.

Full Text

Preamble

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Review on the Factors of Using Intention in Digital Library
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Abstract

[Purpose/Significance] This research aims to summarize domestic and international studies on the factors influencing digital library users' intention to

use, providing references for digital library construction practice and theoretical research on user behavior. [**Method/Process**] By investigating literature on digital library user acceptance, adoption, and continuance intention, this paper summarizes the theoretical models of digital library usage intention and analyzes the changing processes of user attitudes and behaviors during digital library use as well as their influencing factors. [**Result/Conclusion**] The Technology Acceptance Model (TAM) is widely applied in research on digital library usage intention. Individual factors, system factors, contextual factors, and cognitive factors constitute the main aspects influencing usage intention, though the specific processes and patterns of these effects require further investigation and verification. Future research should innovate and improve upon existing findings from the perspectives of model construction, research viewpoints, and research methods to develop a domain-specific theoretical model of user usage intention.

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Digital libraries represent an effective approach for organizing and storing library information resources, preserving digital resources in distributed networks according to established standards and providing users with integrated information services. This significantly enhances the efficiency of information acquisition, dissemination, and sharing, holding important significance for research and education. However, digital library construction has long exhibited a tendency of "emphasizing collection over utilization" [1]. In recent years, numerous online academic resource providers such as CNKI, Wanfang, Chaoxing, and Baidu Academic have attracted large user bases through their advantages in technology, resources, and services, leading to continuously declining usage intention and loyalty toward digital libraries [2]. The value and function of digital libraries can only be realized through users' full and effective utilization, making user acceptance and adoption critical success factors. Given that usage rates and effectiveness have not met construction expectations, it is necessary to analyze users' digital library usage intention, explore and explain the influencing factors and underlying mechanisms behind attitude and behavioral changes, and develop domain-specific models of digital library usage intention to identify effective pathways for enhancing user satisfaction.

This paper reviews current research on factors influencing digital library usage intention, addressing two key issues: First, summarizing fundamental theories and methods in digital library usage intention research, organizing influencing factors, and analyzing attitude and behavioral changes during usage to provide theoretical references for digital library construction and development; Second, examining existing problems and limitations from the perspectives of theoretical model construction, research viewpoints, and research methods, and proposing suggestions and future directions to help researchers further explore the dynamic development patterns, influencing factors, and mechanisms of digital library user

attitudes and behaviors, thereby deepening theoretical achievements in digital library user behavior research.

2 Literature Sources and Research Overview

2.1 Literature Sources

Digital library usage intention encompasses users' attitudes and intentions toward accepting, adopting, and continuously using digital library systems, resources, and services, falling within the scope of information technology or innovation adoption research. Acceptance and adoption represent users' pre-use attitudes, while continuance intention refers to users' attitudes toward continued future use after experiencing digital libraries. These represent two stages of user engagement that are closely related—acceptance and adoption form the foundation for continuance, while continuance represents an extension of acceptance and adoption.

Based on this conceptualization, we identified search keywords including "digital library" or "electronic library" combined with "intention of using," "adoption," "acceptance," "usage," "continuance usage," or "post-adoption." Chinese keywords were searched in CNKI, Wanfang, and VIP databases, while English keywords were searched in Web of Science, ACM Digital Library, ScienceDirect, and Springer. Backward citation searching was also conducted to ensure comprehensiveness. Recognizing that digital libraries comprise systems, resources, and services, and that some studies focus on only one component, we added terms such as "system," "resource," and "service" to ensure thorough coverage. The search was conducted on July 20, 2018, yielding 48 papers after excluding irrelevant or low-quality works—36 in English and 12 in Chinese, with 44 empirical studies and 4 theoretical studies. Since empirical research dominates this field, we selected the 44 empirical studies as our review focus.

2.2 Research Overview

The earliest research on digital library usage intention appeared in 2002, when W. Hong et al. employed the Technology Acceptance Model to examine the effects of individual differences and system characteristics on digital library adoption [3]. The first domestic study emerged in 2008, when Chen Yijin et al. used TAM to explore graduate students' satisfaction and influencing factors in database resource utilization. Early research typically focused on users' initial adoption intention or pre-adoption behaviors toward digital libraries as a whole. As digital library theory and applications matured, research questions became more focused, with post-2008 studies examining usage intention toward specific digital library components (e.g., electronic databases, information systems, information services) from different perspectives. Domestic research emerged primarily after 2011, rarely employing TAM alone but instead adopting integrated models based on multiple theories, similar to contemporary international approaches, thereby enhancing explanatory power.

Empirical research constitutes the primary methodology in this field, following a relatively standardized process: selecting a specific digital library, proposing research hypotheses from a particular theoretical perspective, constructing an empirical model of influencing factors, collecting data through questionnaires or interviews, and employing quantitative analysis (e.g., structural equation modeling, regression analysis) to validate the model and identify determinants of digital library usage intention.

Regarding research settings, most international studies select digital libraries in developing country universities, while domestic research focuses on Chinese university digital libraries. This is primarily because developing countries lag in digital library construction and usage, and users' information literacy and capabilities require improvement—understanding usage intention and its influencing factors can enhance construction and service levels, thereby improving user satisfaction and efficiency. In terms of sampling, both domestic and international studies primarily target university students (undergraduates, masters, and doctoral students) and researchers, though sample sizes vary considerably, ranging from fewer than 100 to as many as 1,500 participants, with most studies selecting 100-500 respondents. Data collection employs questionnaires with predefined scales and indicators for relevant concepts, with each concept measured by 1-5 items, collecting users' ratings on various variable indicators.

3 Theories of User Usage Intention

Before 2010, international research on digital library usage intention typically employed single theories, with the Technology Acceptance Model (TAM) and its extensions being most representative. After 2011, new theoretical models were applied, with integrated approaches gradually emerging. Researchers combined elements from the Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), DeLone & McLean IS Success Model (D&M), Expectation Confirmation Theory (ECM), and others with TAM and D&M to form new integrated models explaining digital library usage intention. Continuously improving information system acceptance theories and models have provided robust theoretical support for digital library usage intention research. Studies on digital library continuance emerged around 2011, with post-adoption and continuance behaviors becoming new research directions. In terms of temporal distribution, 24 papers were published in the last five years, including 9 Chinese papers, indicating that digital library usage intention remains a worthwhile research topic gradually attracting domestic scholars' attention.

TAM is one of the most widely applied models in information systems research, employing a "belief-attitude-intention-behavior" causal chain to explain and predict user acceptance of information technology and systems. Perceived usefulness and perceived ease of use are the two primary determinants of usage intention and behavior [5]. Research improving and refining TAM has focused on explaining perceived usefulness and perceived ease of use. Determinants of perceived usefulness include social influence processes (social norms, image,

voluntariness, experience) and cognitive instrumental processes (job relevance, output quality, result demonstrability, perceived ease of use) [6]. Determinants of perceived ease of use include computer self-efficacy, computer anxiety, computer playfulness, perceived external control or facilitating conditions, perceived enjoyment, and objective usability [7].

The D&M model is another commonly employed framework for digital library usage intention research, examining how system quality and information quality affect user satisfaction with information systems. It defines system quality, information quality, service quality, usage intention, user satisfaction, and net benefits as six key factors for information systems success [8-9]. Additionally, the Unified Theory of Acceptance and Use of Technology (UTAUT) is a widely applied integrative model that synthesizes eight major theories—including the Technology-Task Fit Model, Innovation Diffusion Theory, TRA, TPB, Motivational Model, and others—into four core determinants (performance expectancy, effort expectancy, social influence, and facilitating conditions) and four moderating variables (gender, age, experience, and voluntariness) [10]. UTAUT combines the strengths of various models, avoiding confusion from multiple model selections.

Digital library usage intention research typically employs TAM as the foundational theory, assuming perceived usefulness and perceived ease of use as decisive factors affecting usage, and exploring external factors influencing these perceptions to construct digital library acceptance and adoption models. External factors typically derive from theories such as information quality, system quality, and service quality from the D&M model, or subjective norms, experience, and computer self-efficacy from TAM2 and TAM3. To enhance explanatory power, some studies also explore moderating variables' effects on perceived usefulness and perceived ease of use within the UTAUT framework. Overall, existing research employs relatively single theoretical models, merely adding or deleting variables for different research objects, with few studies extending, deepening, or integrating models to develop frameworks fully applicable to digital library usage intention.

4 Analysis of Influencing Factors on Usage Intention

Digital libraries serve as important pathways for users to access literature and knowledge. Identifying and summarizing factors influencing usage intention is crucial for improving user understanding, enhancing usage efficiency, and promoting digital library development. International research identifies individual, system, contextual, and cognitive factors as influences on digital library usage intention, while domestic research focuses more on system and cognitive factors. Individual and contextual factors have achieved relatively consistent validation and conclusions regarding their effects on usage intention, while certain variables within system and cognitive factors remain contested and warrant future attention.

4.1 Individual Factors

Users' cognition of digital libraries is significantly influenced by personal characteristics, specifically demographic attributes (age, gender, education, nationality, etc.) and capability characteristics (domain knowledge, usage experience, English proficiency, search skills, etc.), as shown in Table .

Individual capability characteristics such as domain knowledge and search skills positively affect both perceived usefulness and perceived ease of use, while usage experience only positively influences perceived ease of use. In non-English-speaking developing countries where English-language resources comprise a large proportion of digital libraries, English proficiency also affects perceived ease of use. However, J. Miller et al. found that among user samples with generally high English proficiency, language was not a major barrier, confirming no significant effect of English proficiency on perceived ease of use [15].

Individual demographic characteristics typically serve as moderating variables in digital library usage intention research, with moderating effects showing clear differences. R. O. Orji employed the UTAUT model to examine gender and nationality's moderating effects, finding that social norms, infrastructure, and perceived ease of use had greater impact on international students' usage intention, particularly among male international students [16]. A. L. A. Rahman et al. demonstrated that gender and age did not significantly moderate the relationship between perceived usefulness, perceived ease of use, and usage intention, though individual experience could strengthen perceived usefulness's effect on usage intention [17]. Conversely, A. M. Sulieiman found that younger users focused more on digital library usefulness while older users emphasized ease of use [18], confirming age's moderating role. Li He et al. discovered that TAM explained usage intention better for undergraduates than for graduate students and faculty, indirectly confirming education's moderating effect on usage intention intensity [19].

4.2 System Factors

Digital libraries consist of software and hardware systems whose functionality, quality, interface, and service factors directly affect users' perceptions of usefulness and ease of use. System factors are considered from three aspects: user interface, system performance, and service quality, including terminology, navigation, interface design, accessibility, visibility, and help functions, as shown in Table .

Most studies incorporate system factors into digital library usage intention research, further demonstrating that system factors are the most important influences on perceived usefulness and perceived ease of use. However, different studies show variations in how and how strongly these factors affect outcomes, without reaching unified consensus. Well-established findings include: Regarding user interface, terminology, navigation, and interface design positively affect

perceived ease of use but have minimal impact on perceived usefulness. Regarding system performance, accessibility positively affects both perceived usefulness and perceived ease of use, while visibility primarily affects perceived usefulness. Regarding usage help, assistance positively influences both perceived usefulness and perceived ease of use, with library-provided help and service facilities directly affecting usage intention [18]. Additionally, J. H. Heinrichs et al. found that functional and service diversity in digital libraries positively affected perceived usefulness and satisfaction but had no significant effect on perceived ease of use or usage intention [29]. Y. M. Cheng introduced "confirmation" from the expectation-confirmation model as a dependent variable, confirming that interface design, accessibility, and technical support positively affected confirmation, while navigation had no significant effect [24].

Some studies based on the system success model explore how quality factors (information quality, system quality, service quality) affect perceived usefulness and usage intention, but have not reached unified conclusions. Yan An et al. confirmed that information quality significantly and positively affected perceived usefulness while system quality had no significant effect [30]. Meng Meng et al. found that both information quality and system quality significantly and positively affected perceived usefulness, while service quality significantly and positively affected perceived ease of use [31]. In studies of quality's direct effect on usage intention, I. Samadi and Ma Zhuo et al. confirmed that information quality, system quality, and service quality all positively affected usage intention [32-33]. However, S. Joo and Guan Fang et al. only found information quality to have a significant positive effect [28,34]. J. Soohyung confirmed that information quality positively affected continuance intention through satisfaction [35]. Chao Yanan et al. found that information quality and system quality significantly and positively affected users' intention to use digital library knowledge linking [36]. X. Zha et al. further confirmed that service quality had the greatest impact on usage intention [37], while A. L. A. Rahman et al. found information quality had no significant effect on usage intention [17].

4.3 Contextual Factors

Users' digital library usage is influenced by surrounding environments and task characteristics, making context an important influence on usage intention. However, current research pays limited attention to contextual factors, addressing only social norms and relevance, as shown in Table .

Social norms reflect the attitudes and opinions of people around users toward digital libraries. Although appearing in only a few studies, they reveal that users' conformity psychology causes social norms to positively affect perceived usefulness and usage intention. Most studies treat relevance as task-technology fit, categorizing it as a system characteristic. However, relevance is closely related to user goals, task characteristics, and context, so this paper classifies it as a contextual factor. Relevance is also an important factor affecting users' perceived usefulness and perceived ease of use regarding digital libraries.

4.4 Cognitive Factors

Cognitive factors reflect users' cognition and attitudes toward digital libraries, directly affecting ultimate usage intention and behavior. These include perceived usefulness, perceived ease of use, self-efficacy, subjective norms, satisfaction, and attitude, as shown in Table .

Perceived ease of use significantly and positively affects perceived usefulness and usage intention, while perceived usefulness significantly and positively affects usage intention—findings that align completely with the TAM model. User cognition also introduces new variables such as self-efficacy, subjective norms, attitude, and satisfaction to reflect users' perceptions and evaluations of their own capabilities or the digital library itself. These variables all significantly and positively affect perceived usefulness and usage intention. Additionally, satisfaction's effect on usage intention appears in continuance research, with Y. M. Cheng and J. Soohyung confirming that expectation confirmation level also significantly and positively affects continuance intention [24,35], while Yan An et al. found that expectation confirmation indirectly affected continuance intention through satisfaction as a mediator [30]. These studies demonstrate that when users' actual utility meets expectations and they feel satisfied with the system, information resources, and services, continuance usage is promoted.

Beyond the cognitive factors listed above, J. Miller et al. introduced trust to measure users' perceptions of digital library security, finding that trust significantly and positively affected usage intention [15]. However, because domestic users are less sensitive to information security and privacy issues, trust has no significant effect on Chinese users' usage intention [42]. Li Wu et al. introduced perceived value as a mediating variable to explain users' intention to use reading clients in digital libraries, confirming that perceived enjoyment had greater impact on usage intention than perceived usefulness, indicating that users employ e-book clients primarily for leisure and entertainment [39]. Additionally, certain user cognitions may negatively affect usage intention, such as O. Nov et al.'s confirmation that computer anxiety and resistance to change significantly and negatively affected perceived ease of use and usage intention [23,25].

5 Summary and Research Outlook

Users' digital library usage process involves four stages: pre-adoption, adoption decision, adoption behavior, and post-adoption. In the pre-adoption stage, individual, system, and contextual factors generate initial cognition about digital libraries, including perceptions of usefulness, ease of use, expectations, and self-efficacy. During adoption decision-making, users form usage intentions through cognition, deciding to accept and use digital libraries only when they feel capable and expect performance improvements. During adoption, users deepen their understanding and generate actual utility, comparing it with expected performance to determine whether expectations are met. In the post-adoption stage, if actual effects meet expectations and users feel satisfied, they will choose

continued adoption.

The above describes the general process of digital library usage intention and behavior. However, certain processes and influencing factors remain contested and require further verification and improvement to develop a domain-specific theoretical model of digital library usage intention. Future research should pay greater attention to the dynamic patterns of user behavior and attitudes in digital library environments and consider improvements from three aspects: research models, research perspectives, and research methods to enrich theoretical research on digital library user behavior.

5.1 Extending Theoretical Models

Based on in-depth investigation of users and digital libraries, researchers should engage in deep reflection, drawing on existing theoretical achievements to identify and confirm new influencing factors and variables in digital library contexts. These should be repeatedly verified through scientific and rigorous methods to systematically expand, deepen, and integrate existing theories. On one hand, when searching for new variables, researchers should attempt to explain phenomena through different theories, which aids in conceptualization and theorization and effectively enhances variable validity. Theories themselves are also important sources of new variables, as different theories explain user behavior from different perspectives. Integrating core elements from different theories into existing models can improve explanatory power across application scenarios. On the other hand, researchers should focus on interaction relationships and influence mechanisms among variables in models. After introducing new variables, models become more structurally complex with more directional relationships. Researchers can consider introducing mediating variables to deeply reveal underlying reasons and mechanisms of independent variables' effects on dependent variables, or introducing moderating variables to delimit boundaries of relationships between independent and dependent variables, thereby achieving model expansion and optimization and ensuring research rigor and contextual adaptability.

5.2 Exploring New Research Perspectives

Users' initial acceptance and adoption are important first steps for digital library success, but continued use represents the ultimate key to success. Users' post-adoption continuance intention and behavior have become new research perspectives. Recent research has begun focusing on digital library continuance issues, introducing satisfaction and expectation confirmation—concepts based on users' subjective feelings—into explanations of behavioral intention causes, following an "expectation-confirmation-satisfaction-intention" causal process that considers satisfaction decisive for continuance [46]. However, in actual digital library usage, changes in user cognition, usage experience, and external environments may alter user attitudes and behaviors. Therefore, greater attention should be paid to the complex dynamic relationship between initial adoption

and continuance, examining and comparing users' psychological changes and decision-making mechanisms across different usage stages to identify different factors affecting initial adoption versus continuance intention, or different patterns of the same factors across stages, thereby better explaining and predicting the dynamic changes in user attitudes and behaviors.

Most digital library users come from organizations such as research institutions or universities. Differences between organizational and individual adoption timelines create distinctions between digital libraries' diffusion processes within organizations and individuals' active adoption processes. Therefore, intra-organizational level individuals' psychology and behavioral motivations toward digital libraries represent another research perspective. Unlike TAM's "belief-attitude-intention-behavior" active causal chain, organizational-level information technology adoption typically borrows from Innovation Diffusion Theory (IDT) [47] and the Technology-Organization-Environment (TOE) model [48]. For example, A. I. Musa attempted to use IDT to theoretically explain low usage rates of digital library services [49], though conclusions await further empirical verification. Digital library usage and diffusion in organizations emerges from individual-level acceptance behaviors, with "micro-diffusion" through cooperation and communication among individuals in research teams leading to "macro-diffusion" at the organizational level. Exploring interrelationships among organizational elements—individuals and digital libraries, organizations and digital libraries, individuals and organizations, organizations and environments—and combining this with digital libraries' diffusion processes in organizations can reveal different organizational elements' influence strengths and mechanisms on usage intention at different stages.

5.3 Adopting Diverse Research Methods

Under new research perspectives, single questionnaire surveys cannot capture the dynamic processes and full picture of research objects, making it difficult to support comprehensive and systematic analysis of digital library acceptance processes and influencing factors. Researchers should consider multiple methods including interviews, grounded theory, field experiments, case studies, and virtual simulations to comprehensively track users' sensory, cognitive, and emotional experiences during digital library usage. Research should not be limited to a single method but should combine qualitative and quantitative approaches as much as possible, using multiple methods to jointly explain phenomena and achieve cross-validation among methods, thereby improving the generalizability and scientific rigor of research conclusions.

References

[1] Ma Xianhuang. Investigation and analysis of content construction on 20 university library websites in China [J]. Library and Information Service, 2005, 49(1): 90-96.

[2] Xu F, Du JT. Factors influencing users' satisfaction and loyalty to digital libraries in Chinese universities [J]. Computers in Human Behavior, 2018, 83: 64-72.

[3] Hong W, Thong JYL, Wong WM, et al. Determinants of user acceptance of digital libraries: an empirical examination of individual differences and system characteristics [J]. Journal of Management Information Systems, 2002, 18(3): 97-124.

[4] Jeong H. An investigation of user perceptions and behavioral intention toward the e-library [J]. Library Collections, Acquisitions & Technical Services, 2011, 35(2): 45-60.

[5] Davis FD. Perceived usefulness, perceived ease of use, and user acceptance of information technology [J]. MIS Quarterly, 1989, 13(3): 319-340.

[6] Venkatesh V, Davis FD. A theoretical extension of the technology acceptance model: four longitudinal field studies [J]. Management Science, 2000, 46(2): 186-204.

[7] Venkatesh V, Bala H. Technology acceptance model 3 and a research agenda on interventions [J]. Decision Sciences, 2008, 39(2): 273-315.

[8] DeLone WH, McLean ER. Information systems success: the quest for the dependent variable [J]. Information Systems Research, 1992, 3(1): 60-95.

[9] DeLone WH, McLean ER. The DeLone and McLean model of information systems success: a ten-year update [J]. Journal of Management Information Systems, 2003, 19(4): 9-30.

[10] Venkatesh V, Morris MG, Davis GB, et al. User acceptance of information technology: toward a unified view [J]. MIS Quarterly, 2003, 27(3): 425-478.

[11] Thong JYL, Hong W, Tam KY. Understanding user acceptance of digital libraries: what are the roles of interface characteristics, organizational context, and individual differences? [J]. International Journal of Human-Computer Studies, 2002, 57(3): 215-242.

[12] Vaidyanathan G, Bargegllini M. User acceptance of digital library: an empirical exploration of individual and system components [J]. Issues in Information Systems, 2005, 6(2): 279-285.

[13] Park N, Roman R, Lee S, et al. User acceptance of a digital library system in developing countries: an application of the technology acceptance model [J]. International Journal of Information Management, 2009, 29(3): 196-209.

[14] Khan A, Qutab S. Understanding research students' behavioral intention in the adoption of digital libraries: a Pakistani perspective [J]. Library Review, 2016, 65(4/5): 295-319.

[15] Miller J, Khera O. Digital library adoption and the technology acceptance model: a cross-country analysis [J]. The Electronic Journal of Information Sys-

tems in Developing Countries, 2010, 40(6): 1-19.

[16] Orji RO. Impact of gender and nationality on acceptance of a digital library: an empirical validation of nationality-based UTAUT using SEM [J]. Journal of Emerging Trends in Computing & Information Sciences, 2010, 1(2): 68-79.

[17] Rahman ALA, Jamaludin A, Mahmud Z. Intention to use digital library based on modified UTAUT model: perspectives of Malaysian postgraduate students [J]. Proceedings of World Academy of Science Engineering & Technology, 2011(75): 116-122.

[18] Sulieiman AM, Mohammad AS. Electronic library services acceptance and use: an empirical validation of unified theory of acceptance and use of technology [J]. The Electronic Library, 2015, 33(6): 1100-1120.

[19] Li He, Shen Wang, Guo Jia. Research on digital library resource utilization based on TAM model [J]. Library and Information Service, 2010, 54(15): 53-56.

[20] Lee GT, Dlahann N, Ramayah T, et al. Impact of interface characteristics on digital libraries usage [J]. Malaysian Online Journal of Instructional Technology, 2005, 2(1): 1-9.

[21] Kim JA. Toward an understanding of web-based subscription database acceptance [J]. Journal of the American Society for Information Science & Technology, 2006, 57(13): 1715-1728.

[22] Ramayah T. Interface characteristics, perceived ease of use and intention to use an online library in Malaysia [J]. Information Development, 2006, 22(2): 123-133.

[23] Nov O, Ye C. Resistance to change and the adoption of digital libraries: an integrative model [J]. Journal of the American Society for Information Science & Technology, 2009, 60(8): 1702-1708.

[24] Cheng YM. Why do users intend to continue using the digital library? An integrated perspective [J]. Aslib Journal of Information Management, 2014, 66(6): 640-662.

[25] Nov O, Ye C. Users' personality and perceived ease of use of digital libraries: the case for resistance to change [J]. Journal of the American Society for Information Science & Technology, 2008, 59(5): 845-851.

[26] Wang Wei, Hou Maowen. Research on library electronic resource usage intention based on UTAUT [J]. Library Work and Research, 2015(4): 51-54.

[27] Kim YM. The adoption of university library website resources: a multigroup analysis [J]. Journal of the Association for Information Science & Technology, 2010, 61(5): 978-993.

[28] Guan Fang, Lin Qiang, Yin Jin. Research on university library digital resource user adoption model: a case study of Xidian University Library [J].

Journal of the China Society for Scientific and Technical Information, 2015, 34(2): 203-212.

[29] Heinrichs JH, Lim KS, Lim JS, et al. Determining factors of digital library adoption [J]. Journal of the Association for Information Science & Technology, 2007, 58(14): 2325-2334.

[30] Yan An, Yan Yalan. Empirical research on factors influencing continuance intention of university library electronic resources [J]. Library Tribune, 2013, 33(3): 43-50.

[31] Meng Meng, Zhu Qinghua. Integrated research on digital library information quality, system quality and service quality [J]. Modern Information, 2017, 37(8): 3-11.

[32] Samadi I, Masrek MN, Yatins FBM. The effect of individual characteristics and digital library characteristics on digital library effectiveness: a survey at University of Tehran [J]. World Applied Sciences Journal, 2014, 30(30A): 214-220.

[33] Ma Zhuo, Guo Mohan. Research on factors influencing continuance intention of digital library micro-services based on user perception [J]. Information Research, 2016(12): 17-22.

[34] Joo S, Choi N. Factors affecting undergraduates' selection of online library resources in academic tasks [J]. Library Hi Tech, 2015, 33(2): 114-117.

[35] Soohyung J, Namjoo C. Understanding users' continuance intention to use online library resources based on an extended expectation-confirmation model [J]. The Electronic Library, 2016, 34(4): 554-571.

[36] Chao Yanan, Liu Qingxu, Bi Qiang. Empirical research on influencing factors of digital library knowledge linking user intention [J]. Modern Information, 2017, 37(9): 35-43.

[37] Zha X, Xiao Z, Zhang J. A survey of user perceptions of digital library e-quality and affinity [J]. Serials Review, 2014, 40(1): 3-11.

[38] Tella A. Predicting users' acceptance of e-library from the perspective of technology acceptance model [J]. International Journal of Digital Library Systems, 2011, 2(4): 34-44.

[39] Li Wu, Hu Po, Ji Dan. Research on user intention to use e-book reading clients: from the perspective of UTAUT and VAM theory [J]. Library Tribune, 2018, 38(4): 103-110.

[40] Ramayah T, Aafaqi B. Role of self-efficacy in e-library usage among students of a public university in Malaysia [J]. Malaysian Journal of Library & Information Science, 2004, 9(1): 39-57.

[41] Cai H, Zheng D. Digital library use intention research: an explanation based on theory of reasoned action and technology acceptance model [EB/OL]. [2018-

10-20]. http://www.dpi-proceedings.com/index.php/dtcse/article/view/17491/16998.

[42] Zheng Daqing, Wang Jia. Research on digital library user acceptance: a case study of Shanghai University of Finance and Economics Library [J]. Library Theory and Practice, 2011(11): 63-66.

[43] Chen JF, Chang JF, Kao CW, et al. Integrating ISSM into TAM to enhance digital library services [J]. Electronic Library, 2016, 34(1): 58-73.

[44] Chen Yijin, Cao Shujin. Empirical research on graduate students' satisfaction and influencing factors in database resource utilization [J]. Library and Information Knowledge, 2008(2): 29-39.

[45] Zheng DQ. Electronic library acceptance research: based on the theory of reasoned action [M]//Advances in Electronic Commerce, Web Application and Communication. Berlin: Springer, 2012: 261-266.

[46] Bhattacherjee A. Understanding information systems continuance: an expectation-confirmation model [J]. MIS Quarterly, 2001, 25(3): 351-370.

[47] Rogers EM. The Diffusion of Innovations [M]. New York: Free Press, 1995: 866-879.

[48] Fleischer, Mitchell. The Processes of Technological Innovation [M]. Lanham: Lexington Books, 1990: 143-167.

[49] Musa AI, Ezra GS, Monsurat MF. Perceived attributes of diffusion of innovation theory as a theoretical framework for understanding the non-use of digital library services [J]. Information and Knowledge Management, 2015, 5(9): 82-87.

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