

Construction of a University Information Literacy Education Ecosystem Based on the ACRL Framework for Information Literacy for Higher Education: A Case Study of the City University of Hong Kong Library (Postprint)

Authors: Wei Haiyan

Date: 2023-07-26T00:00:00+00:00

Abstract

[Purpose/Significance] Understanding the logical relationships among threshold concepts and the educational hierarchy embedded in the ACRL “Framework for Information Literacy for Higher Education” (hereinafter referred to as the “Framework”) constitutes the prerequisite and foundation for constructing a university information literacy education ecosystem. [Method/Process] This study conducts a three-dimensional hierarchical analysis of the logical architecture of information literacy within the “Framework,” based on which it elaborates on the educational architecture of information literacy. Furthermore, it illustrates the methods and processes for constructing a university information literacy education ecosystem through a case study of the “Lighthouse Historical and Cultural Research” project implemented by the City University of Hong Kong Library. [Results/Conclusion] The construction of an information literacy education ecosystem centers on cultivating students’ critical judgment, analytical abilities, and research capacity. It encompasses a comprehensive educational process that includes general education, skills education, and extended education, along with the joint participation and collaboration of multiple stakeholders and organizations, thereby constituting a reliable and stable educational system for developing students’ information literacy.

Full Text

Volume 63, Issue 6, March 2019

Constructing a University Information Literacy Education Ecosystem Based on ACRL’s Framework for Information Literacy for Higher Education: A Case Study of City University of Hong Kong Library

Wei Haiyan
Library of Shanghai University of Finance and Economics, Shanghai 200433

Abstract

[Purpose/Significance] Understanding the logical relationships and educational levels embedded among the threshold concepts in ACRL's Framework for Information Literacy for Higher Education (hereinafter referred to as "the Framework") is the prerequisite and foundation for constructing a university information literacy education ecosystem. [Method/Process] This study conducts a three-dimensional hierarchical analysis of the logical architecture of information literacy in the Framework, explains the educational framework of information literacy based on this analysis, and combines it with the case of the "Lighthouse Historical and Cultural Research" project conducted by the Library of City University of Hong Kong to illustrate the methods and processes for constructing a university information literacy education ecosystem. [Result/Conclusion] The construction of an information literacy education ecosystem is a complete educational process centered on cultivating students' judgment, analytical ability, and research capacity, encompassing general education, skills education, and expanded education, with the participation and cooperation of multiple personnel and organizations. It represents a reliable and stable educational system for cultivating students' information literacy.

The Association of College & Research Libraries (ACRL) stated in its 2015 Framework for Information Literacy for Higher Education that "only by implementing a richer and more complex set of core ideas can the full potential of information literacy as an educational reform movement be realized" [1]. After more than a decade of exploration and research, ACRL updated the information literacy standards to a framework, aiming to show that as times change, information literacy is not a fixed set of standards but an open concept that can continuously guide and promote the implementation of this educational reform through the construction of core ideas. Understanding and grasping the core concepts of the Framework is the key and prerequisite for promoting this educational reform. Since the release of the Framework, the library science community at home and abroad has conducted numerous interpretations and discussions around its core concepts. Many scholars agree with the openness and inclusiveness of the concepts and content listed in the Framework, believing they provide development space for information literacy education in the present and future. However, some scholars argue that the Framework's content is vague and uncertain, creating operational confusion in practical implementation [2]. Regarding the development of information literacy education, some scholars have explicitly pointed out that "information literacy education should not be an independent course" [3], but rather an educational process integrated into students' learning and research contexts [4]. Many scholars have also called for the establishment of clear and explicit information literacy assessment standards and evaluation systems based on the Framework [5]. Therefore,

reviewing current research by scholars both domestically and internationally, although the Framework's content has been beneficially explored from different perspectives, there has not yet been a three-dimensional interpretation of the logical relationships among the core concepts of information literacy. Moreover, information literacy education has largely remained focused on specific course design and development dominated by network application skills, showing a tendency toward simplification and one-dimensionality in the educational process, which weakens the educational openness and diversity principles advocated by the Framework.

The cultivation and construction of information literacy constitute a complete educational system. From the perspective of this paper, the Framework provides a three-dimensional and logically hierarchical concept of information literacy and educational process. We need to understand and grasp the logical relationships among the threshold concepts of information literacy, and based on this, construct corresponding educational levels and stages, as well as a flexible and open educational ecosystem, thereby forming a complete information literacy education ecosystem. Only in this way can the connotation and educational system of information literacy become clearly structured and well-organized, and be able to provide direct guidance for practical educational activities. To this end, this paper begins with an analysis of the logical architecture among the threshold concepts of information literacy, and discusses the construction of an information literacy education ecosystem by combining it with the case of the "Lighthouse Historical and Cultural Research" project conducted by the Library of City University of Hong Kong.

From the perspective of cognitive science, information literacy is a learning process that combines internal and external factors, a process in which internal abilities continuously combine with external environments and elements to generate new knowledge energy. According to people's cognitive habits and processes, as well as actual educational stages, we divide the formation of information literacy into three stages: the entry stage of information literacy, the construction stage of information literacy, and the practice stage of information literacy. The six information literacy threshold concepts listed in the Framework correspond to these three stages respectively. In other words, the logical relationships and hierarchical nature among the threshold concepts are revealed through this analytical framework, becoming clear at a glance. As can be seen, this is a progressive educational process from shallow to deep, from low to high. The preceding stage constitutes the prerequisite and foundation for the realization and completion of the subsequent stage's objectives. The three stages are both connected and mutually dependent, forming an organic whole of information literacy education. Students' information literacy abilities are formed and improved through cultivation at each stage in this progressive process. The advancement of information literacy abilities is shown in Figure 1 [Figure 1: see original paper].

2 Analysis of the Logical Relationships in the Information Literacy Framework

2.1 Framework Content and Levels

The Framework for Information Literacy for Higher Education developed by ACRL consists of five parts: an introduction, the Frames (core framework elements), Appendix 1 (Framework Implementation), Appendix 2 (Background of the Framework Development), and Appendix 3 (Further Reading). In its core Frames section, it elaborates on six threshold concepts—“Authority Is Constructed and Contextual,” “Information Creation as a Process,” “Information Has Value,” “Research as Inquiry,” “Scholarship as Conversation,” and “Searching as Strategic Exploration”—as well as the knowledge skills and behavioral approaches that support each threshold concept. “Threshold” refers to boundaries, scope, and degree; the adjustment and change of thresholds can produce corresponding effects within a certain range. Threshold concepts are open foundational concepts used for broad understanding and practical application. Among the six information literacy threshold concepts listed in the Framework, they are sorted only by English alphabet for convenience [6]. However, the author believes this does not mean that the threshold concepts are parallel or unrelated; in fact, they have a logically hierarchical and progressive relationship.

2.2 Logical Architecture Among Information Literacy Education Threshold Concepts

Logical architecture refers to the logical concepts and sequences followed in the design and construction of related elements within a knowledge system or framework. Information literacy education is a complete educational system involving complex elements such as information understanding, information description, information generation, knowledge transformation, and ability enhancement. As a guide for information literacy education in higher education, the Framework must necessarily reflect a logical architecture in its conceptual design.

To better understand and grasp the connotations and logical relationships among the information literacy concepts listed in the Framework, and to establish a matching educational process, we have reorganized the relationships among the six information literacy threshold concepts according to the logical sequence of the information literacy formation process and educational stages, as shown in Table 1 .

Table 1 Logical Relationships Among Information Literacy Threshold Concepts

Information Literacy Stage	Corresponding Threshold Concept in the Framework	Acquired Ability
Information Understanding and Recognition	Authority Is Constructed and Contextual	

Information Literacy Stage	Corresponding Threshold Concept in the Framework	Acquired Ability
Information Value Judgment	Information Has Value	
Information Creation	Information Creation as a Process	Strategic Exploratory Retrieval
Information Application in Practice	Research as Inquiry	Information-assisted Research
Information-assisted Research	Scholarship as Conversation	

The entry stage of information literacy emphasizes preliminary understanding and recognition of information. This is the most easily overlooked yet crucial stage in information literacy education. At this stage, the focus is not on teaching students how to search for information immediately, but rather on helping them understand what information is, what its essence is, how to discern information, and how to understand the authority and reliability of information. Only by understanding these prerequisites can we avoid blind use and creation of information. In contemporary times, a torrent of information surges toward us in waves, filling our lives, work, and daily spaces. The complexity, diversity, and disorder of information make it difficult for people to adapt and choose [7]. In essence, we should not allow information to control our thinking and behavior; rather, we should use our cognition and thinking to master information, obtain needed and valuable information from it, and thereby serve social development. This requires cultivating students' independent thinking ability, ability to distinguish things, ethical ability to recognize truth from falsehood, challenging ability to question authority, and practical ability to serve society. Without the cultivation of these abilities, students will lose themselves in the ocean of information. Lacking education at this stage means losing the foundation for information literacy formation, which is extremely detrimental to subsequent information application and academic research.

The construction stage of information literacy focuses on the organization and creation of information resources, matched with appropriate retrieval methods and techniques. In current information courses, we teach students information retrieval methods, tools, and skills, and how to use various databases. However, in the educational concept of strategic exploratory retrieval, the significance of information retrieval is not merely the application of tools and techniques, but rather the user's process of information discovery, knowledge organization, and problem exploration—the ability to organize information resources around a specific problem or field, with retrieval methods and tools being only one part of this process. For example, the prerequisite for keyword searching is knowing the existence of a certain concept or knowledge point, which are important factors

beyond search skills and techniques. Moreover, different fields and types of resources have different retrieval sources and methods, and many exist beyond the network. This requires breaking students' mental set of over-reliance on network resources and encouraging them to discover the existence of different types of resources outside the network. Therefore, pioneering thinking and interdisciplinary perspectives are the foundation and guarantee for information organization and construction.

The practice stage of information literacy is also the advanced stage of comprehensive application of information literacy in practice and academic research. It is a process where information literacy abilities are tested and exercised in specific practical and research work, where deficiencies are discovered in practice and actively enriched and improved. The Framework points out that information literacy formation and improvement are promoted through inquiry-based research and conversational academic scholarship. This stage must have a different application gradient from the previous stage and surpass the practical height of the previous stage. This stage should help students apply their information literacy abilities to specific practice and research, helping them examine their deficiencies in practice and make further improvements and enhancements. This concept emphasizes more strongly the multi-dimensional and dynamic formation process of information literacy and the authenticity of application scenarios. This requires us educators to build and create research contexts and platforms for students, providing practical conditions and mechanisms for progress for the application and development of students' information literacy in authentic research contexts and application scenarios.

3 Characteristics and Value of the Information Literacy Education Ecosystem

3.1 Model of the Information Literacy Education Ecosystem

The ecosystem of information literacy education refers to an organic entity where various elements mutually promote, integrate, and interact with each other. In the information literacy education ecosystem, cultivating students' three major abilities—judgment, analytical ability, and research capacity—remains the core objective of information literacy education. General education, skills education, and expanded education, which are developed around these three abilities, are integrated throughout this ecosystem, jointly forming a complete information literacy system, as shown in Figure 2 [Figure 2: see original paper].

3.2 Characteristics of the Information Literacy Education Ecosystem

The construction of an information literacy education ecosystem is an educational process and systematic project that matches training objectives with educational stages. In the view of this paper, it has several characteristics:

First, the integrity of information literacy. The understanding of information

literacy cannot be reduced to the cultivation of one-sided hands-on operation abilities, search skills, or instrumental rational thinking. It should more importantly include education on value judgment, information ethics, and social responsibility when using and creating information.

Second, the integrity of educational elements. Information literacy education is not about librarians mechanically delivering retrieval courses in classrooms, nor is it about teachers setting up courses independently. Rather, it is an educational process where librarians, teachers, scholars, and innovation platforms integrate to create diverse and open communication and interaction platforms, jointly cultivating students' information literacy.

Third, the integrity of the educational process. General education is the prerequisite for information literacy education, while innovative education is the manifestation and extension of information literacy education. Based on the integrity of information literacy education, these three stages of education cannot be fragmented but must be organically integrated, as shown in Figure 3 [Figure 3: see original paper].

3.3 Value of Constructing the Information Literacy Education Ecosystem

- (1) Promoting the development of integrated education. In the information literacy education ecosystem, the role of integrated education is manifested in the fusion of “information resources, knowledge education, interaction platforms, and outcome transfer” into an educational whole. The understanding of information literacy cannot be one-sidedly reduced to information skills, nor can it be isolated as an independent unit. General education and literacy education are inseparable. General education provides students with ethical, aesthetic, and emotional experiential enlightenment education, cultivating their perceptual cognitive abilities and emotional ethical values [8], all of which are indispensable cognitive prerequisites and components of information literacy. With these prerequisites and foundations, students can make judgments and discernments about the source, authenticity, and value of information through their independent judgment and thinking abilities. In reality, however, universities often fragment general education, information literacy education, and innovation and entrepreneurship education into separate pieces operated by different departments, rarely considering them as an educational whole. The reasons are twofold: first, the role of libraries in general education is neglected; second, libraries lack connection and integration with general education and innovative education.
- (2) Accelerating the development and transformation of libraries. University libraries are different from public libraries; they are not merely positioned as service functions but always bear educational functions and responsibilities [9]. In the information literacy education ecosystem, university

libraries should become facilitators for the transformation and enhancement of students' information literacy abilities, playing a connecting and pervasive role throughout various stages of education, including general education, skills education, and expanded education. University libraries can leverage their advantages to play a role in contextual experiential learning in general education, promotion of interdisciplinary reading, establishment of resource organization and knowledge systems, and construction of academic innovation platforms, thereby promoting the development of integrated education.

- (3) Motivating the capacity enhancement of librarians. The development and transformation of university libraries are specifically realized through the improvement of librarians' abilities and qualities. Librarians' current work focuses on resource promotion and retrieval skills instruction, while corresponding work has not been carried out for knowledge mining at the front end of information literacy education or research assistance at the back end. Regarding resources, librarians' work is not simply resource promotion but rather knowledge-centered, involving knowledge discovery, knowledge decomposition, knowledge condensation, and extraction of knowledge clues, integrating the value of resources with readers' needs to form a connection. Skills education should not be viewed in isolation; it should not be the focus of information literacy education. As librarians, the goal is not merely to teach students how to search, but to use information tools to help students build their own knowledge clusters and knowledge systems. This requires librarians to have interdisciplinary knowledge perspectives and intellectual collisions, which is not a process that professional teachers alone can accomplish. Therefore, librarians' interdisciplinary knowledge abilities and broad disciplinary perspectives play a crucial role. Librarians must have the academic literacy and ability to dialogue with disciplines and scholars, as well as the capacity to organize and establish various academic resources and exchange platforms.

4 Practical Approaches of the Information Literacy Education Ecosystem at City University of Hong Kong Library

4.1 Establishing a Progressive Information Literacy Education Process

In the specific practical exploration of ACRL's Framework, the Library of City University of Hong Kong launched the "The Lighthouse Heritage Research Connections" (LHRC) project. Lighthouse culture is a unique cultural symbol in the coastal areas of Hong Kong and Taiwan. It is not only a cultural icon but also a research object that embodies historical essence in various aspects including history, culture, architecture, technology, astronomy, geography, and machinery. Organized and led by CityU Library, the project takes students on field trips to lighthouse historical and cultural heritage sites, helps them use various resources

to conduct scientific, cultural, and historical research on lighthouses, promotes active dialogue and exploration with disciplinary experts and researchers from around the world, and ultimately produces project research outcomes. This project illustrates and demonstrates the logical relationships among threshold concepts in ACRL's Framework and the progressive educational stages through concrete practice.

In the entry stage of information literacy, to cultivate students' ability to discern and judge information, CityU Library conducted extensive cultural general education. Cultural general education aims to open a dialogue and connection between contemporary university students and traditional culture. University libraries have many resources, including precious historical materials and academic resources, all of which preserve and contain rich historical and academic development contexts. However, combining this with reality reveals many obstacles for students to access these resources, such as alienation from traditional cultural awareness, dominance of pragmatism, prevalence of instrumentalism, and language barriers like reading classical Chinese, as well as a lack of guided pathways into culture. Therefore, more important than simply promoting resources is inspiring students' cognitive interest in and discovery of traditional culture. In cultivating students' aesthetic and artistic literacy, CityU Library has carried out long-term work, such as activities like the "Calligraphy Exhibition of Academicians from Three Regions" and "Calligraphy and Science: From Skill to Art—Academician Focus Forum." These broad and wide-ranging general education activities play an important cumulative role in fostering information literacy. The Framework's mention of daring to question authority also includes, in reality, the ability to discern and judge the authenticity of resources. Through these cultural immersion processes, students form their own judgments about the source, authenticity, and value of information in cultural history.

In the construction stage of information literacy, the aim is to cultivate students' analytical abilities through "strategic exploratory retrieval" and "information creation as a process." The project's resource search process and methods break students' usual prejudices in understanding information literacy, because many resources cannot be readily found on the internet. Modern students are accustomed to network thinking, and their over-reliance on network resources leads them to believe that knowledge that can be found online exists, while what cannot be found does not exist. Their trust in and dependence on network information often obscures the real sources of materials, and their vision does not shift to real existence beyond the network. Therefore, the search ability that strategic exploratory retrieval aims to cultivate is by no means limited to network search skills; it should more importantly include retrieval methods beyond networks and electronic databases, such as the ability to search ancient books, which involves not only retrieval methods but also broader knowledge of bibliography. To this end, CityU Library also provided information literacy training in the project on the utilization and searching of literature resources such as the *Siku Quanshu* (Complete Library of the Four Treasuries), *Tiangong*

Kaiwu (The Exploitation of the Works of Nature), and Republican-era *Shenbao* (Shanghai News), helping students discover the real existence of literature materials beyond the network.

In terms of practical research, it is even more important to reflect the agency of information literacy in assisting research and to help students engage in “scholarship as conversation.” To this end, CityU Library gathered numerous academic resources and invited scholars and experts from around the world to conduct field research and study together with students, giving them opportunities to work alongside scholars, experts, and cultural workers from different disciplinary fields in practical ways. Project team members visited and investigated lighthouses in Fujian, Hong Kong, Taiwan, Macau, and other regions, conducting surveys together with local workers on-site, proposing their own viewpoints from different perspectives, and re-examining the historical significance and value of lighthouses in contemporary times.

Through this project, CityU Library created an authentic research context for cultivating students’ information literacy, achieving a rich and complete practical education process from cognitive inspiration at the entry stage, through practical guidance at the construction stage, to research assistance at the application stage. Correspondingly, students’ abilities also rise from initial perceptual cognition to rational analysis and even intellectual research capacity. Students can engage in face-to-face exchanges with disciplinary experts and scholars from around the world, sharing viewpoints and opinions for a common research goal. This context can stimulate students’ research interest, prompting them to actively explore knowledge domains and various resources they were previously unaware of, and enhancing their perception of innovation through discovery and searching.

4.2 Building an Interdisciplinary Learning and Communication Integration Platform

Researching lighthouse historical culture is both a respect for and inheritance of traditional historical culture, and a promotion for students to rediscover and carry forward traditional culture from contemporary disciplinary perspectives, thereby forming a dialogue and connection between traditional culture and the present. For students, it is both a cultural influence and an excellent opportunity to promote interdisciplinary research on specific projects [10]. The design inspiration and starting point of the project originate from this. University libraries can build a bridge of connection and communication among librarians, resources, teachers and students, and researchers, using interest to motivate students, resources to activate research, and research to promote the re-accumulation and transformation of outcome resources. While using information resources, new information resources are also created, thus forming a good educational cycle and ecological development.

To this end, CityU Library, together with academic departments, designed the

training concept of “interdisciplinary/experiential research” for the lighthouse research project. It proposed the goal of promoting students’ analytical and innovative abilities, with “librarians, students, teachers, researchers, academic circles, and cultural workers” jointly participating in the research of historical and cultural heritage as an aggregate, and established an activity concept of building a “resource-entity-knowledge-outcome-dissemination” framework education system to ensure the smooth development and implementation of the project.

In the initial stage, CityU Library, as the leader and organizer, conducted presentations for the research project. Combined with the accumulation and influence brought by past activities, the library’s project brand has formed a good cultural influence and appeal among students, quickly attracting students from different departments and majors to join.

CityU Library is not only the convener and resource provider of the project. In the early preparation process, librarians also organized and excavated relevant historical materials about lighthouses, research focal points, research perspectives, and other related clues. Moreover, relevant teachers and experts were invited to explain each knowledge point, providing preliminary guidance for students. In this way, there was sufficient and favorable guarantee in terms of research direction and project action.

The project is divided into two stages: individual learning and team investigation. During the approximately one-year individual learning stage, students mainly conduct independent research and preparation work on campus to lay a foundation for the field investigation stage. In terms of using ACRL’s Framework to guide practice, CityU Library proposed the following basic requirements and task objectives for students in this project:

- (1) Be interested in Chinese history and culture and able to combine traditional culture with their own expertise;
- (2) Spend at least 40 hours on project research work;
- (3) Conduct field investigations of lighthouse history and culture in different regions;
- (4) Based on field investigations, be able to actively search for various types of archival materials and propose viewpoints within their own disciplinary expertise;
- (5) Comprehensively use resources and information means to conduct in-depth understanding and research on the research object;
- (6) Encourage the proposal of research points and interest points from individual perspectives and disciplinary backgrounds, but must be able to meet the challenges of interdisciplinary research and must learn and understand

content from other disciplines.

4.3 Promoting the Enhancement and Transformation of Information Literacy Abilities

In terms of data collection, analysis and judgment, and media production for the project, students from different disciplines all demonstrated great enthusiasm and interest. During the more than one-year field investigation period, students visited the Pescadores Fisherman Island Lighthouse, Black Point Lighthouse, Matsu Dongju Lighthouse, Dongsha Lighthouse, and other sites together with the project's teachers, experts, and scholars, completing a large amount of measurement data and literature search work, and creating and accumulating rich research outcomes and works. Students utilized their respective professional backgrounds to contribute their strengths and jointly produced the project's research outcomes. Finally, students produced a series of documentaries on lighthouse culture through aerial photography, narration, soundtrack, and other means, publicly published and released them on DVD, and comprehensively showcased their research outcomes and elegance through social media, websites, newspapers, and other forms.

In the process of promoting the enhancement and transformation of information literacy abilities, CityU Library innovatively adopted the “experiential learning” educational model to strengthen the perception and practical experience of information literacy. The aim was to continuously and uninterruptedly help students improve their information literacy abilities through the collection of literature and records related to lighthouse culture from various periods, current situation investigation and research, and the use of scientific research methods and modern media technology. Encouraged by the project team, some students demonstrated the original appearance of lighthouses and imaginative recreations through image, animation, and 3D model production methods, as shown in Figure 4 [Figure 4: see original paper] and Figure 5 [Figure 5: see original paper].

The production of multimedia documentaries involves many aspects, including students' understanding of the research project, design of the research process, and presentation of thinking processes, and requires summarization and presentation through hands-on practice. The process is still quite arduous. Through the design and implementation of various learning and practice links, students' thinking abilities, analytical abilities, knowledge planning abilities, knowledge expression abilities, communication abilities, and creative abilities are continuously transformed and enhanced in practice.

The Framework released by ACRL reflects the comprehensiveness of information literacy connotation and education. CityU Library, using the Framework as a benchmark, created the LHRC project activity, providing excellent educational reference and many highly inspiring ideas through its pioneering thinking and creative educational structure:

- (1) Rethinking the function and positioning development of university

libraries. University libraries are different from public libraries. While bearing the function of information resource dissemination services, they also shoulder the function of student education. Moreover, university libraries should always regard the enrichment and improvement of educational functions as their basic goals and tasks. It is precisely the work of libraries that can integrate educational functions with resources. The realization of each educational function must combine many resources, and similarly, the integration of different resources can form and realize different educational functions. University libraries will become connectors and converters of educational functions, which is very meaningful.

- (2) Emphasizing the comprehensiveness of information literacy education. In the era of big data, we do not exclusively follow machine thinking, nor do we encourage students to engage in predatory reading. We should not strengthen the blindness and trend-following nature of education. Instead, we should encourage students to return to solid reading, creating contexts and conditions for their knowledge accumulation and literacy ability enhancement. It is precisely the diverse reading environment and resources, rich perceptual cognition and emotional experience, that help develop their innovative thinking and expand their rational analytical abilities.
- (3) Information literacy education needs to reflect cognition and confidence in national culture. Information literacy is not only technical means education but also emotional ethics and social responsibility education. Information without moral constraints and value judgments is blind and dangerous. The complexity of information sources and the exclusive rationality of technical means can lead to confusion and blind following among people, especially university students. The cultivation of excellent traditional Chinese culture for modern people is precisely the best way to help students establish discernment and judgment abilities. Therefore, information literacy does not mean abandoning or isolating culture; rather, it is precisely through understanding and discovering one's own culture that one establishes one's own information abilities and information authority, truly achieving the comprehensiveness and richness of information literacy.

References

- [1] ACRL. Framework for information literacy for higher education (Chinese translation) [EB/OL]. [2018-05-10]. http://www.ala.org/acrl/sites/ala.org/acrl/files/content/standards/framework_chinese.pdf.
- [2] SCHULTES J, KNAPP M. Awareness, adoption, and application of the Association of College & Research Libraries (ACRL) framework for information literacy in health sciences libraries [J]. *J Med Libr Assoc*, 2017, 105(4): 347-354.
- [3] LIU Caie, FENG Sujie. Interpretation and enlightenment of ACRL's

- Framework for Information Literacy for Higher Education [J]. Library and Information Service, 2015, 59(5): 143-147.
- [4] ZHANG Di. Exploring practical paths based on ACRL's Framework for Information Literacy for Higher Education: A case study of Nankai University Library [J]. Library and Information Service, 2017, 61(1): 47-55.
- [5] LI Tong, YE Zhifeng. Quality evaluation and compilation suggestions for Chinese university information literacy textbooks based on ACRL's Framework for Information Literacy for Higher Education [J]. Library and Information Service, 2015, 59(8): 54-59.
- [6] WANG Chunsheng. Brief analysis of ACRL's Framework for Information Literacy for Higher Education in the United States [J]. Library Theory and Practice, 2016(4): 43-47.
- [7] WEINBERGER D. Everything is miscellaneous: The power of the new digital disorder [M]. LI Yanming, trans. Taiyuan: Shanxi People's Publishing House, 2017.
- [8] CHEN Dexiang, QU Yang, LI Rui. Three system designs for information ethics curriculum in information management major under the new information environment [J]. Research on Library Science, 2018(5): 20-23.
- [9] XU Lu. Research on development trends of university libraries under the new technology environment: Based on analysis of ACRL's "Top Trends in Academic Libraries: 2016 Edition" report [J]. Library and Information, 2017(4): 83-90.
- [10] YE Yan, DAI Jun. Research on interdisciplinary collaborative information behavior patterns and characteristics [J]. Research on Library Science, 2017(4): 68-73.
- [11] CHING S H. Turning a service learning experience into a model of student engagement: the Heritage Research Connections (LHRC) project in Hong Kong [J]. The Journal of Academic Librarianship, 2018(44): 196-206.

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

Source: ChinaXiv — Machine translation. Verify with original.