

# Workplace Information Literacy Research: Post-print of New Progress in International Information Literacy Research

**Authors:** Yan Xianzhuo

**Date:** 2023-08-26T00:00:00+00:00

## Abstract

[Purpose/Significance] In response to recent advances in international information literacy research, this study systematically introduces the state of workplace information literacy research, aiming to provide insights and references for domestic information literacy research. [Method/Process] Employing a combined approach of quantitative analysis and qualitative research, and based on statistical analysis of relevant literature, this paper elaborates on three aspects: core concepts, theoretical foundations, and research dimensions, while also summarizing the characteristics of foreign research in this domain and prospecting future research trends. [Results/Conclusion] The analysis reveals that workplace information literacy research represents a new growth point in current international information literacy research; promoting a unified understanding of information literacy across different disciplines and industries constitutes the primary driving factor of this research; this research contributes to advancing reforms in university information literacy education, fostering conceptual reflection on information literacy, and facilitating the integration of information literacy with occupational characteristics.

## Full Text

### Preamble

#### Workplace Information Literacy Research: New Progress in Foreign Information Literacy Research

Yan Xianzhuo

Library of Ningbo Dahongying University, Ningbo 315175

## Abstract

**[Purpose/Significance]** In view of recent developments in foreign information literacy research, this paper systematically introduces research on workplace information literacy, aiming to provide ideas and references for domestic information literacy research. **[Method/Process]** By adopting a combination of quantitative analysis and qualitative research methods, and based on statistical analysis of relevant research literature, this paper introduces three aspects: core concepts, theoretical foundations, and research dimensions. It also summarizes the characteristics of foreign research in this field and prospects related research trends. **[Result/Conclusion]** Research analysis shows that workplace information literacy research represents a new growth point in foreign information literacy research. Promoting unified understanding of information literacy across different disciplines and industries is the main driving factor of this research. This research helps promote reform of university information literacy education, conceptual reflection on information literacy, and the integration of information literacy with vocational characteristics.

**Keywords:** workplace information literacy; foreign; review

## Introduction

The rapid development of information technology has profoundly influenced people's information behavior patterns and cognitive habits, continuously expanding the scope of information literacy research. As differences in information behavior and technology application across various social environments have become increasingly recognized, issues of information literacy in non-academic environments have begun to attract attention. However, due to the lack of a unified theoretical framework, understanding of information literacy varies significantly across disciplines and industries, particularly between education management departments and employment sectors. M. B. Zorica et al. point out that although information literacy, as a universal skill, significantly impacts graduate employability, educators and employers lack a common language in describing information literacy, which affects mutual understanding of the issue [1].

Foreign researchers began addressing questions such as “how information literacy manifests in the workplace” in the 1990s, building on reflections about information literacy conceptualization in academic environments. They conducted research on concepts, components, manifestations, evaluation, and cultivation of information literacy in work contexts, producing results that have played an important role in understanding individual information behavior, re-examining information literacy connotations, and expanding the research foundation of information literacy. In contrast, domestic information literacy research has primarily focused on theoretical aspects such as concepts, evaluation, and significance, with limited discussion on how university information literacy education affects student employability and career development. Although some domestic

scholars have conducted similar research on enterprise employees' information literacy, including technical components [2], evaluation dimensions [3], and core competencies [4], their research perspectives and methods differ considerably from foreign approaches.

In recent years, as university information literacy education faces challenges and graduate employment issues become increasingly prominent, foreign attention to workplace information literacy research has gradually increased. In 2016, the 4th European Conference on Information Literacy (ECIL) designated workplace information literacy as one of its main themes, emphasizing the support of information literacy education for graduate employability and career development, and viewing it as an important future direction for information literacy research [5]. Currently, this research area has not received sufficient attention from domestic scholars, and no comprehensive review of foreign research achievements has been conducted. To address this gap, this paper provides a comprehensive review of recent foreign workplace information literacy research to help researchers in related fields fully understand existing achievements and deepen future research.

## 2. Research Distribution, Core Concepts, and Theoretical Foundations

### 2.1 Literature Growth and Discipline Distribution

To comprehensively collect foreign research literature, this study selected the following databases for literature retrieval: SpringerLink, Web of Science, Elsevier (ScienceDirect), ProQuest Digital Dissertations & Theses (PQDT), EBSCO, and EiVillage. The search formula used was “Subject = (Information Literacy) AND Workplace” with no limit on publication years. The retrieval was conducted on September 1, 2017, yielding 103 documents.

Statistical analysis reveals that foreign attention to workplace information literacy began in the 1990s, with limited literature before 2000, followed by a significant increase thereafter. Particularly after 2010, foreign interest in workplace information literacy has maintained sustained momentum, with related research literature reaching a peak in 2016 [Figure 1: see original paper].

In terms of disciplinary distribution, foreign research primarily concentrates in information science, followed by library science and education. It also involves management, business and finance, computer science, medicine, psychology, behavioral science, sociology, and informetrics [Figure 2: see original paper].

Regarding literature sources, 39 papers were conference papers. After 2010, the European Conference on Information Literacy (ECIL) and the International Conference of Education, Research and Innovation (ICERI) have both featured workplace information literacy as major conference themes, generating substantial research literature and demonstrating attention from relevant professional associations and organizations. Among journal articles, seven high-publishing

journals belong to information science and represent important professional journals in foreign library and information science fields, indicating attention from the foreign library and information science community .

## 2.2 Conceptual Definitions

**2.2.1 Workplace Information Literacy** Researchers present different definitions of workplace information literacy according to their research purposes, but all are based on analysis of workplace practices. L. Barham defines workplace information literacy as the ability to find, access, and apply information to assist in solving work-related challenges, specifically including understanding information attributes, evaluating information sources, understanding information economic characteristics, judging information value and cost-effectiveness, effectively defining information needs and information overload, understanding the information society context, judging interpersonal relationships (both formal and informal work relationships), and maintaining client orientation and focus [7]. T. Travis views workplace information activities as comprehensive experience processes based on goal-sharing and professional collaboration, influenced by work nature, environment, and organizational staff. In this context, since the types of information and strategies needed for problem-solving are not universal, both organizations and individuals jointly determine information behavior, making negotiation, dynamism, and contextualization basic characteristics of information activities. Therefore, workplace information literacy research focuses on the real-world scenarios of information needs, acquisition, and evaluation in work environments, as well as the impact of informal learning on how individuals understand and utilize information [8]. J. Sokoloff describes workplace information literacy as information processing abilities related to completing work tasks and achieving work goals, noting that workplace information literacy is often understood by organizational managers as technical and communication capabilities [9].

**2.2.2 Information Landscape** A concept inseparable from workplace information literacy in foreign research is the “information landscape.” A. Lloyd argues that information literacy, as a sociocultural practice, is embedded and intertwined with other practices in social fields, governed by collaborative activities. Therefore, information literacy research should be situated within specific contexts or settings, termed “information landscapes” [10]. An information landscape refers to a particular communication space where individuals develop identities and establish connections through shared practices and behaviors, achieving information creation, sharing, and accumulation through interaction. Based on differences in information communication, shared practices, and identity development, information landscapes can be categorized into academic learning environments (higher education and academic libraries), workplaces, public libraries, and communities. R. Monge and E. Frisicaro-Pawlowski point out that in higher education and academic library contexts, librarians and subject teachers implement educational activities according to standard frameworks compiled

by professional organizations. This environment, dominated by formal learning, can be called an “academic learning environment,” which they consider the primary information landscape [11].

Existing literature elaborates on the necessity of specialized research on workplace information literacy and proposes a practice- and context-based research paradigm for information literacy. Research based on this concept attempts to explain why education management and employment departments have different understandings of information literacy and raises issues concerning the transfer of information literacy between different information landscapes.

### 2.3 Theoretical Research

Currently, foreign workplace information literacy research is still developing and has not yet established a complete research framework. Researchers examine relevant issues from different perspectives, primarily focusing on practice theory and learning theory.

**2.3.1 Practice Theory** Practice theory originated in philosophy and is reflected in research across philosophy, education, political science, and sociology. Its influence on workplace information literacy research is not to provide a unified theoretical framework but to offer different research perspectives. T. R. Schatzki, starting from concepts like “social site,” discusses the relevance of information literacy to practice environments. His theory posits that social life is continuous practical activity, and individuals understand life through the practices of “social sites.” The causes and nature of information literacy are practice-based, representing negotiated consensus on knowledge constitution and cognitive approaches. Information literacy research needs to divide practices into different social sites and focus on how practices manifest in each site, relationships among practitioners, and the social and material conditions affecting practices. According to this theory, in a specific setting, the legitimation of knowledge types and cognitive approaches is shaped and maintained by individual language and behavior. Workplace knowledge (including information literacy) is the result of negotiation among all members’ language, behavioral experiences, and behavioral patterns in that environment, and this result accumulates over time. Therefore, workplace information literacy is closely related to environment and is based on shared understanding of knowledge types and cognitive approaches in specific contexts [12].

E. Wenger uses the concept of “community of practice” as an analytical tool, analyzing social practice from four dimensions: community, practice, meaning, and identity, emphasizing the roles of “participation” and “negotiation of meaning.” He argues that history and social environment give social practice structure and meaning, and that independent or universal meanings do not exist. Meaning sharing, negotiation, and development occur within certain “communities of practice,” and the attribution of practical meaning is achieved through “negotiation of meaning,” which involves not only meaning exchange but also

interpretation of meaning contexts. This theory views communities of practice as scopes or institutions affecting negotiation capabilities, with information literacy meaning the negotiation capabilities individuals possess. Within communities of practice, individuals have different “identities,” and the foundation for developing capabilities is sharing specific knowledge [13].

A. Lloyd emphasizes the collective ownership of knowledge in practice processes. Using the nursing profession as an example, he points out that novices’ acquisition of practice-related knowledge depends on experts’ help and learning of normative knowledge. To achieve this, novices need to participate in information literacy-related practices, identifying legitimate knowledge types and information sources in the workplace. Novices should recognize the collective ownership of knowledge in the workplace, learn languages, knowledge, and skills related to work landscapes, and develop recognizable workplace identities [14].

Practice theory offers the following insights for workplace information literacy research: First, the legitimation of knowledge types and cognitive approaches is relative and exists within “social sites” or “communities of practice,” making the meaning and constitution of information literacy in practice also relative. Second, knowledge in specific environments is collectively owned, representing the result of “negotiation of meaning” based on shared understanding, and information literacy can be understood as a component of individuals’ negotiation capabilities. Third, language, behavior, knowledge types, cognitive approaches, and identity are all related to information literacy. Overall, practice theory provides different research perspectives for workplace information literacy research, with different practice theories implying different research methods and analytical approaches.

**2.3.2 Learning Theory** Learning theory holds fundamental significance for information literacy research. Foreign researchers analyze workplace information literacy issues from perspectives of informal learning and workplace learning theories.

Building on informal learning theory’ s emphasis on the connection between learning and context, researchers derive the relevance of information literacy to context. J. Sokoloff argues that traditional research’ s neglect of the relationship between information literacy and workplace environments is the main cause of the cognitive disconnect between education managers and employment counselors regarding information literacy, including disconnects in research terminology, evaluation systems, and practical implementation [15]. S. E. Eaton believes that compared with the hierarchical nature of formal learning, non-formal and informal learning possess higher degrees of negotiation and transformation, better aligning with work practice requirements, and related theories can support workplace information literacy research [15].

Given the important position of “contextualization” in the concept of workplace information literacy, workplace learning theory has become an important theo-

retical tool in foreign research. R. Monge and E. Frisicaro-Pawlowski argue that a shortcoming of current information literacy education is the oversimplification of information contexts and insufficient consideration of the complex information environments students face after graduation. Simultaneously, educational goal setting and subject relationships do not fully consider workplace characteristics, limiting the transfer of information literacy from academic to workplace environments [11]. J. A. Realin summarizes three elements of workplace learning: learning occurs during action and task execution, knowledge creation and utilization originate from collective activities, and learners must master the ability to learn how to learn [17]. L. Brennan more vividly summarizes its connotation, viewing workplace learning as learning at work, learning through work, learning for work, and learning from work [18]. Overall, workplace learning theory emphasizes the relationship between information literacy education and context while suggesting that information literacy research should also recognize the significance of employability and career development capabilities.

### 3. Analysis Dimensions

Foreign scholars present diverse understandings of workplace information literacy, analyzing the issue from different dimensions based on their respective purposes and methods.

#### 3.1 University Information Literacy Education Based on Learning Theory and Educational Theory

Researchers argue that workplace information activities differ from those in university environments. Traditional information literacy education focuses on adapting to university environments, thereby weakening its support for student employability and career development. Workplace information literacy research precisely addresses this problem. A. Lloyd believes that current concepts of information literacy popular in higher education possess basic characteristics oriented toward academic research and formal learning. Due to the highly procedural nature of school education, students discover and disseminate information in ways teachers expect, while teachers use standardized content (such as papers or reports) and procedures (such as publication) as evaluation criteria, creating a closed loop for information activities and information literacy assessment. University information literacy education primarily helps students utilize a stable and uniform set of tools, such as databases, search strategies, and academic journals, rather than developing general information skills for adapting to work environments, resulting in limited effectiveness in promoting graduate employment and career development [19]. A. Sfard further deepens this analysis from a learning theory perspective, arguing that in formal learning processes, conceptualized information is decomposed into basic units. The role of learning activities is to endow these basic units with meaning to create more complex units, which are memorized as knowledge and utilized when needed. University information literacy frameworks are built upon these knowledge units, aiming

on one hand to develop universal skills adaptable to any environment, while on the other hand emphasizing the particularity of information acquisition and application. The result is reduced complexity of information literacy practice, with the focus becoming how to describe information skills rather than the social characteristics of the information landscape, creating a disconnect between information literacy education and actual effectiveness [20].

Reflection on university information literacy education constitutes an important driving force for workplace information literacy research. Conceptualization of information literacy and neglect of real-world contexts are primary points of criticism among researchers. Scholars holding these views argue that information literacy research needs to break free from traditional academic environment constraints, adopt an “information landscape” research paradigm, and incorporate workplace-related content into information literacy frameworks.

### 3.2 Reorientation of Information Literacy Research Norms and Values

Foreign workplace information literacy research reflects rethinking of information literacy research objectives and objects, as well as reorientation of research norms and values. Researchers argue that in educational environments, information literacy is viewed as a teaching and learning object [21], manifested as the effectiveness of information literacy education and library-related skills education in learning interventions [22], which aligns with the practical characteristic that learning is the primary goal of all activities in educational environments. However, in workplace environments, information literacy faces challenges in integrating with professions, and overemphasizing the independence of information literacy risks disconnecting it from professional fields [23].

Analysis of relevant literature reveals two opposing views in current foreign information literacy research. One view presupposes the concept of information literacy, considering it a set of skills or competencies that can be learned and acquired, with results measurable through “objective testing” [24][25]. The alternative view does not presuppose information literacy concepts, instead understanding information literacy as activities that already exist or are occurring in specific environments, with research tasks being to understand and reveal it [26]. R. T. O’farill argues that information literacy cannot be treated as a universal skill and needs to be combined with specific contexts and practices, making it impossible to predefine information literacy in workplace environments [27]. A. H. Lundh et al. point out that workplace information literacy is merely a means to achieve organizational goals rather than an end in itself. Given the complexity of practical activities, it is difficult to preset clear information literacy concepts when examining how research participants complete work tasks, representing the difference between “real-world” information literacy and standardized information literacy in academic environments [28]. The differences between these two research approaches are shown in Table 2 .

### 3.3 Revealing the Connection Between Information Literacy and Employability

An important purpose of foreign workplace information literacy research is to reveal the connection between information literacy and employability. J. Crawford and C. Irving believe that a connection exists between information literacy and employability, but current research has not sufficiently revealed this connection [29]. The main reasons for this situation include: school teachers' lack of understanding about workplace information environments, making it difficult for relevant education to translate into workplace skills [30]; and insufficient understanding of workplace attributes related to information literacy, resulting in deviations in information literacy definitions [31]. Researchers argue that revealing the connection between information literacy and employability requires efforts in two areas: first, promoting information literacy concepts and implementing related education in the workplace to explore information's business value and address information overload challenges, as suggested by B. Cheuk [32]; and second, increasing attention to workplace attributes in information literacy research, such as H. Taylor's argument that critical thinking, a key attribute in business, should become an element of information literacy, and X. Zhang et al.'s view that abilities related to information environment scanning should become workplace attributes of information literacy [33].

### 3.4 Analysis of Information Literacy Combined with Industry Characteristics

Analyzing workplace information literacy in combination with specific industries represents a major characteristic of foreign research in this field. For example, A. Lloyd and K. Williamson conducted survey analysis of firefighters' information literacy based on the practical characteristics of firefighter work environments [34]. J. Graham and G. W. Semich explored skill improvement and knowledge updating issues for social care professionals based on statistical analysis of their preferences in information collection processes [35]. J. R. Eckerdal analyzed individual understanding of information literacy practice characteristics and usefulness in healthcare contexts through interviews with midwives and young women [36]. R. T. O' Farrill described understanding of information literacy from staff perspectives through interviews and surveys of nurses at government health information and counseling call centers, examining the relevance and applicability of traditional information literacy standards [27].

## 4. Summary and Outlook

Literature analysis demonstrates that foreign workplace information literacy research has made significant progress in theoretical foundations, research methods, and specific dimensions, gradually becoming an important area of information literacy research. The development of related research and implementation of related projects provides momentum for the development of information literacy research.

#### 4.1 Characteristics of Foreign Workplace Information Literacy Research

Comprehensive analysis reveals that current foreign workplace information literacy research possesses the following characteristics:

**First, it exhibits growth potential.** Professional organizations and industry associations are important driving forces for foreign workplace information literacy research. ECIL and ICERI' s continuous inclusion of workplace information literacy as annual conference themes has important promotional effects for research in this field. Since 2000, the number of related research papers has continuously increased. With the growing impact of information and communications technology (ICT) on economic development and increasing attention to graduate employment issues, workplace information literacy will continue to receive sustained attention.

**Second, it demonstrates clear practical orientation.** Workplace information literacy research aims to solve the problem of disconnection between traditional academic environment information literacy research and practice. Therefore, emphasizing the combination of theoretical research and practice has become an important feature of foreign research in this field. In terms of theoretical foundations, foreign research uses practice theory as its basic theoretical foundation, and although researchers discuss workplace information literacy from different dimensions, the influence of practice theory is universal. Regarding research purposes, researchers view the deviation between information literacy research and its impact on employability and career development as a primary research objective, which itself addresses a practical problem. In terms of research methods, researchers extensively employ empirical research methods combined with specific professions, emphasizing the guiding significance of theoretical research for practice. Some research directly integrates with industry information literacy training programs, using actual effects as important components of research outcomes.

**Third, it reflects cross-industry characteristics.** Although traditional research views information literacy as a basic competency for individual survival and development in the information society, its research scope has mainly concentrated in education and research fields, with limited reflection of other industries. Workplace information literacy research, however, demonstrates more cross-industry features. On one hand, it takes reflection on information literacy research in academic environments as a basic entry point for analysis from the overall characteristics of work environments. On the other hand, large amounts of research combine with specific professions, making information literacy research reflect industry characteristics.

**Fourth, it inherits and develops traditional information literacy research.** Although foreign workplace information literacy research proposes new research paradigms that situate information literacy within different “information landscapes” for differentiated analysis, it still follows the basic logic of using

information technology, skills, and resources to solve practical problems, reflecting general characteristics of information literacy research. The difference lies in that this field of research examines information literacy within specific contexts, providing more concrete descriptions of information literacy. Simultaneously, researchers' reflection on information literacy conceptualization and discussion of whether information literacy can be predefined enable further deepening of information literacy research.

#### 4.2 Research Outlook

Through comprehensive analysis of foreign workplace information literacy research, this study identifies that future research in this field will further impact the following aspects:

**First, providing references for university information literacy education reform.** Current university information literacy education focuses on improving student quality and academic completion, with limited effect on promoting graduate employment and career development. Implementation primarily relies on information retrieval courses. Although integration between information literacy education and subject teaching continues to improve, integration between information literacy and vocational education has not yet begun. Workplace information literacy research demonstrates higher integration in research perspectives, reflecting further deepening of practical understanding of information literacy. Related research perspectives and methods will provide references for university information literacy education reform. Currently, foreign scholars have conducted preliminary discussions on teacher roles (including librarian roles), teaching content design, and educational evaluation methods, such as proposing the development of information literacy curricula reflecting employer needs [37] and implementing workplace-characteristic information literacy projects within academic frameworks [38]. This area of research will become a future focus of information literacy research.

**Second, reflecting on information literacy conceptualization.** Understanding of information literacy concepts is a core issue in information literacy research, determining not only the starting point of research in this field but also forming the basis for establishing relevant standards or frameworks. Workplace information literacy research demonstrates different viewpoints on conceptualization issues: in terms of definition methods, it proposes post-definition, meaning relevant research does not use unified pre-definition as a discussion basis but instead defines concepts post-hoc according to industry characteristics or research methods, making descriptions of information literacy more specific. Influenced by this, related scholars also believe that traditional information literacy concepts mainly reflect academic characteristics and require supplementation with vocational content descriptions. Reflection on information literacy conceptualization is currently an important content of workplace information literacy research, requiring further exploration in future research.

**Third, further integration with occupational environments.** Current workplace information literacy research demonstrates basic characteristics of combining with specific professions, with related research projects mainly concentrated in education, healthcare, law, and public services. In these fields, information services constitute important components of relevant professional work content, which is an important factor influencing the concentration of related research projects. Further development of workplace information literacy research requires increasing research samples, such as understanding information literacy-related issues in emerging industry work environments like enterprises, business, services, and information industries. This will have important impacts on deepening and expanding research in this field.

## References

- [1] ZORICA M B, PIRANEC S, BUELIC V. Are we speaking the same language? Croatian employers' IL competency requirements for prospective employees [C]// European Conference on information literacy. Heidelberg: Springer International Publishing, 2016: 99-108.
- [2] 郑丽娟. 关注企业员工基本信息能力的培养 [J]. 商场现代化, 2007 (2): 273 - 274.
- [3] 王壮. 企业知识型员工信息素养培养模式多维度构建研究 [J]. 情报科学, 2009 (6): 812 - 815.
- [4] 赖茂生, 赵康. 企业信息管理人员信息行为和信息素养研究 [J]. 情报科学, 2010 (7): 961 - 965.
- [5] COLLARD A S, SMEDT T D, FASTREZ P, et al. How is information literacy related to social competences in the workplace? [M]// Information literacy: key to an inclusive society. Cham: Springer International Publishing, 2016: 79-88.
- [6] 王芳, 张鑫, 翟羽佳. 国内外信息源选择研究述评及一个整合的理论模型 [J]. 中国图书馆学报, 2017 (3): 96 - 116.
- [7] KIRTON J, BARHAM L. Information literacy in the workplace [J]. The Australian library journal, 2005, 54(4): 365-376.
- [8] TRAVIS T. From the classroom to the boardroom: the impact of information literacy instruction on workplace research skills [J]. Education libraries, 2011, 34(2): 19-31.
- [9] SOKOLOFF J. Information literacy in the workplace: employer expectations [J]. Journal of business & finance librarianship, 2012, 17(1): 1-17.
- [10] LLOYD A. Information literacy landscapes: information literacy in education, workplace and everyday contexts [M]. Chandos: Oxford, 2010.
- [11] MONGE R, FRISICARO-PAWLOWSKI E. Redefining information literacy to prepare students for the 21st century workforce [J]. Innovative higher education, 2014, 39(1): 59-73.

- [12] SCHATZKI T R. The site of the social: a philosophical account of the constitution of everyday life [M]. Philadelphia: University of Pennsylvania Press, 2002.
- [13] WENGER E. Communities of practice and social learning systems: the career of a concept [C]// BLACKMORE C. Social learning systems and communities of practices. London: Springer, 2010: 179-198.
- [14] LLOYD A. Informing practice: information experiences of ambulance officers in training and on-road practice [J]. *Journal of documentation*, 2009, 65(3): 396-419.
- [15] EATON S E. Formal, non-formal and informal learning: the case of literacy, essential skills, and language learning in Canada [M]. Calgary: Eaton International Consulting Inc, 2010: 36.
- [16] BRUCE C, HUGHES H, SOMERVILLE M M. Supporting informed learners in the twenty-first century [J]. *Library trends*, 2012, 60(3): 522-545.
- [17] RAELIN J A. Work-based learning: bridging knowledge and action in the workplace [M]. San Francisco: Jossey-Bass, 2008.
- [18] BRENNAN L. Integrating work-based learning into education: a guide to good practice [R]. Bolton: University Vocational Awards Council, 2005.
- [19] LLOYD A. Framing information literacy as information practice: site ontology and practice theory [J]. *Journal of documentation*, 2010, 66(2): 245-258.
- [20] SFARD A. On two metaphors for learning and the dangers of choosing just one [J]. *Educational researcher*, 1998, 27(2): 4-13.
- [21] PILERO O, LINDBERG J. The concept of information literacy in policy-making texts: an imperialistic project? [J]. *Library trends*, 2011, 60(2): 338-360.
- [22] WALTON G, HEPWORTH M. A longitudinal study of changes in learners' cognitive states during and following an information literacy teaching intervention [J]. *Journal of documentation*, 2011, 67(3): 449-479.
- [23] JULIEN H, WILLIAMSON K. Discourse and practice in information literacy and information seeking: gaps and opportunities [J]. *Information research*, 2011, 16(1): 95-116.
- [24] CHU S K W, TSE S K, CHOW K. Using collaborative teaching and inquiry project-based learning to help primary school students develop information literacy and information skills [J]. *Library & information science research*, 2011, 33(2): 132-143.
- [25] GROSS M, LATHAM D. Experiences with and perceptions of information: a phenomenographic study of first-year college students [J]. *The library quarterly*, 2011, 81(2): 161-186.
- [26] MORING C. Newcomer information practice: negotiation on information seeking in and across communities of practice [J]. *Human IT*, 2011, 11(2): 1-20.

- [27] O'FARRILL R T. Information literacy and knowledge management at work: conceptions of effective information use at NHS24 [J]. *Journal of documentation*, 2010, 66(5): 706-733.
- [28] LUNDH A H, LIMBERG L, LLOYD A. Swapping settings: researching information literacy in workplace and educational contexts [EB/OL]. [2017-09-05]. <http://informationr.net/ir/18-3/colis/paperC05.html>.
- [29] CRAWFORD J, IRVING C. Information literacy in employability training: the experience of Inverclyde libraries [EB/OL]. [2017-09-05]. <http://www.the-rightinformation.org/about/>.
- [30] EYRE J. Context and learning: the value and limits of library-based information literacy teaching [J]. *Health information and libraries journal*, 2012, 29(4): 344-348.
- [31] TAYLOR H L. Information literacy in subject-specific vocabulary: a path to critical thinking [J]. *College & undergraduate libraries*, 2012, 31(1): 124-132.
- [32] CHEUK B. Delivering business value through information literacy in the workplace [J]. *Libri*, 2008, 58(3): 137-143.
- [33] ZHANG X, MAJID S, FOO S. Environmental scanning: an application of information literacy skills at the workplace [J]. *Library & information science research*, 2011, 33(2): 132-143.
- [34] LLOYD A, WILLIAMSON K. Towards an understanding of information literacy in context: implications for research [J]. *Journal of librarianship & information science*, 2008, 40(1): 3-12.
- [35] GRAHAM J, SEMICH G W. A model for effectively integrating technology across the curriculum: a three-step staff development program for transforming practice [J]. *International journal of information and communication technology education*, 2008, 2(1): 1-12.
- [36] ECKERDAL J R. To jointly negotiate a personal decision: a qualitative study on information literacy practices in midwifery counseling about contraceptives at youth centres in Southern Sweden [J]. *Information research*, 2011, 16(1): 5-8.
- [37] REEDY K, MALLET E, SOMA N. iKnow: information and knowledge at work [EB/OL]. [2017-09-05]. [http://iknow.open.ac.uk/docs/IKnow%20Final\\_{report}.pdf](http://iknow.open.ac.uk/docs/IKnow%20Final_{report}.pdf).
- [38] WATERS N, KASUTO E, MCNAUGHTON F. Partnership between engineering libraries: identifying information literacy skills for a successful transition from student to professional [J]. *Science & technology libraries*, 2012, 31(1/2): 141-158.

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

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