

# ***A brief Analysis of University Libraries Information Literacy Education Innovation in the Big Data Era***

**Xihong Li\***

*Library, Shandong Technology and Business University, Yantai, China*

*\*corresponding author*

**Keywords:** big data; information literacy education; data literacy; problem; education model

**Abstract:** The emergence of big data has an impact on all aspects of social life. The connotation of information literacy has changed greatly. It is a big problem for university libraries that how information literacy education can not be eliminated in the data-filled environment. This paper tries to analyze its existing problems, and gives some suggestions for improvement, such as raising awareness, education mode and curriculum content.

## **1. Introduction**

The rapid development of information technology and the Internet have changed the traditional way of information acquisition, more and more human behaviour are being contacted and communicating through the network, generating a large amount of data and forming Big Data. Therefore, we are in an era full of data. In many areas, such as politics, economy, education, security, health care, data help us to make important decisions [1]. In 2012, the White Paper on Big Data issued by the United Nations declared: "The era of Big Data has come, and the emergence of Big Data will have a profound impact on all areas of society." Under the background of big data, it is an important problem how to change the information literacy education in order to catch up with the pace of the times for University Libraries at present.

## **2. Development and Problems of Information Literacy Education in Colleges and Universities in China**

The term information literacy was first proposed by Paul Zurkowski, president of the American Association of Information Industries, in 1974. It was simply defined by the American Library Association (ALA) as three aspects: cultural literacy, information awareness and information skills. The information literacy education of University Libraries in China started relatively late. In 1984, the Ministry of Education issued documents requiring universities to offer the course of "document retrieval and utilization" in general, and clearly put forward the training of University Students' document retrieval skills [2]. Since then, information literacy education in China has experienced three stages: literature retrieval education, information retrieval education and information literacy education. Information literacy in different periods has different connotations, so the objectives and methods also have their own emphasis. Traditional information literacy education mainly

emphasizes the cultivation of comprehensive abilities such as information view, information knowledge and skills [3].

However, compared with the rapid development of information technology and the great information demand, information literacy education in China's universities exists the following problems.

### **2.1. Ignorance on Information Literacy Education**

At the beginning of information literacy education in China, in 1984, the Ministry of Education issued the "Opinions on Opening Courses of Literature Retrieval and Utilization in Colleges and Universities" which made relevant provisions on information literacy education, but few could be implemented. It was not valued until 2002 that the first "National Symposium on Information Literacy Education in Colleges and Universities" was held. Attaching importance to it, the Ministry of Education promulgated the General Rules for Library of General Colleges and Universities (Revised General Provisions) with a special clause to stipulate information literacy education [4]. Universities also offer relevant courses. In contrast, the United States attaches great importance to information literacy education. Information literacy education has become one of the contents of basic education. It is not only widely offered in Colleges and universities, but also in many primary and secondary schools so as to achieve universal education of information literacy[5].

### **2.2. Single Educational Mode**

Many teaching modes such as Bib network theme research mode and WebQueset are widely used in foreign universities [4]. But Chinese universities still use traditional freshmen admission education, literature retrieval course, lecture training and appointment service [6]. A few universities begin to use the network for online education, Generally speaking, the teaching mode is obsolete and lack of innovation, it is difficult to stimulate the enthusiasm and initiative of students, thus losing the meaning.

### **2.3. Incomplete Curriculum Content**

Traditional information literacy only includes cultural literacy, information awareness and information skills, and its content is relatively simple. In the highly developed Internet environment, the content of information literacy education curriculum should be more rich and colorful, it should include not only the above content, but also information awareness and information ethics, Only so, Information literacy education can adapt to the development of modern society.

## **3. The Connotation of Information Literacy under the Background of Big Data: Data Literacy**

After more than 50 years of development, information literacy is changing from the first generation to the second one. The first generation of information literacy mainly focuses on searching authentic and reliable information [7]. In 2011, Society of College, National and University Libraries (SCONUL) issued a new edition of information literacy standards, pointing out that information literacy is a comprehensive concept covering digital literacy, visual and media literacy, academic competence, information processing, information skills, data monitoring and data management [4] [8]. It can be seen that under the background of big data, the second generation of information literacy has more new connotations, and become a comprehensive concept containing a variety of literacy. Especially data literacy.

### **3.1. Data Awareness**

The diversification, the rapid production and disappearance of big data promote the society to enter the rapid development period. In this process, big data also carries more functions. Therefore, people must realize that it is an indispensable and important resource, and timely capture data information related to their own needs, so as to cultivate a certain sense of data.

### **3.2. Data Capability**

Big data contains tremendous energy. Only with the corresponding ability can we fully tap its intrinsic value. These abilities include the ability of data acquisition, storage, processing and development. Big data challenges people's ability of utilizing data. It is necessary to improve college students' data ability through information literacy education.

### **3.3. Data Ethics**

In the process of acquisition, access, development and utilization of big data, there will be many risk problems such as loss, leakage, distortion, deviation, and so on[8]. They will have some adverse effects. It is indispensable Strengthening the ethical and moral education of big data.

## **4. Innovative Suggestions on Information Literacy Education of University Libraries in Data Ages**

### **4.1. Strengthen Information Literacy Awareness**

Consciousness is the intrinsic motive force of action. Users with strong information consciousness will actively seek and use information[9]. Therefore, it is the first and important step to cultivate students' positive information awareness in information literacy education.

### **4.2. Innovation of Information Literacy Education Model**

#### **4.2.1. MOOC**

MOOC, known as Massive Open Online Course in English, is a new open online course teaching mode which has appeared in recent years. It is also called "Mu Course"[10]. Currently, Courser, Udacity and Dex are three major course providers to build this learning platform, mainly for higher education. They have their own learning, just like real universities. Compared with the management system[11], it has the characteristics of large scale, openness, online and so on. It is welcomed by many learners. The learners can participate in classroom learning from different colleges and universities at anytime and anywhere. More and more colleges and universities at home and abroad join these platforms. It becomes a very popular teaching mode.

#### **4.2.2. SPOC Mode**

With the wide implementation of MOOC, its drawbacks such as high dropout rate and low completion rate also appear [12]. And soon attracted the attention of global education experts, so they have also been exploring new teaching models [13]. Professor Armando Fox of the University of California, Berkeley, USA, took the lead in proposing the SPOC teaching mode, namely Small Private Online Course, [14]. Compared with MOOC, it adopts a small-scale restrictive and open strategy. It can effectively reduce the differences among different learners, so that teachers can

teach genetically [15]. Both SPOC and MOOC are useful supplements to the current higher education mode [12].

#### 4.2.3. Embedded Teaching Mode

Embedded teaching mode is that librarians become teachers' assistants, and personally participate in the teaching objectives, curriculum system, syllabus and other work of colleges, so that they can insert information literacy education content into physical classroom teaching or network teaching [16]. In this way, information literacy education and professional teaching are integrated. Embedded teaching breaks the limitation of time and space, exchanges the status of librarians and students, and students' needs are in an active position, which can be met in the first time. Therefore, it can provide students with deeper and better service [17].

#### 4.2.4. Flipped Classroom

"Flipped Classroom", also known as "Inverted Classroom" or "Inverted Classroom"[18], refers to the readjustment of the time inside and outside the classroom, basic knowledge learning is brought forward to pre-class for student learning. Thus, the students can learn more deep knowledge seminars, case studies, problem-solving and other ways. Flipping classroom makes students' study become actively, so it should have better effect. If embedded teaching is a way of exchanging the status of teacher and student, then flipping classroom is to adjust the learning state of student. They are both effective educational ways.

### 4.3. Perfecting the Content of Information Literacy Course

Information literacy education in Colleges and universities has the characteristics of interdisciplinary and interdisciplinary. A single curriculum content can not meet the needs of students of different majors and grades. Therefore, it is necessary to establish a scientific and reasonable curriculum system. There are three levels: the first is the cultivation of basic information literacy, the second is the cultivation of professional information literacy, and the third is the cultivation of information literacy based on research projects [18]. In terms of content, it covers information consciousness, information knowledge, information technology and information morality.

In short, in the era of Big Data, college students are at a loss about what to do due to the fragmentation and quantification of information. Only by mastering technology and improving information literacy, can they discern the truth and falsity of information, find the information we need efficiently and quickly, and stride forward with confidence.

## References

- [1] David Herzog, Shen Hao, Li Yun. *Data literacy* [M]. Beijing: Renmin University of China Press, 2018.
- [2] Zhang Qi. *Information literacy education in University Libraries* [J]. *Taxation*, 2017 (35): 192.
- [3] Zhang Zhao. *A Review of Media and Information Literacy Studies in China* [J]. *New Century Library*, 2019 (1): 81-85.
- [4] Liu Qiaoying. *Present situation and Prospect of information literacy education in China* [J]. *Information Exploration*, 2013 (2): 45-48, 53.
- [5] Yang Xiaoyue, Jiang Tiansu. *Progress in Information Literacy Education* [J]. *Journal of Changchun University of Technology (Social Science Edition)*, 2006 (1): 63-66.
- [6] Ji Shunping, Ma Liping. *Information literacy education in Colleges and Universities under the background of "Internet + library"* [J]. *Journal of Agricultural Library and information science*, 2017, 29 (12): 147-150.
- [7] Peng Liwei. *Research on Information Literacy Education Expansion in Big Data Era* [J]. *Library Theory and Practice*, 2018 (9): 79-84.

- [8] Chen Xiaohong. *Information Literacy Education Theory and Practice in the Big Data Era* [M]. Chengdu: Southwest Jiaotong University Press, 2017.
- [9] Zhao Jing. *Modern Information Query and Utilization (4th Edition)*. [M]. Beijing: Science Press, 2017.
- [10] Li Qing, Wang Tao. MOOC: A Giant Open Course Model Based on Connectivism [J]. *China Distance Education*, 2012 (3): 30-36.
- [11] Large-scale open online course Baidu Encyclopedia  
<https://baike.baidu.com/item/%E5%A4%A7%E5%9E%8B%E5%BC%80%E6%94%BE%E5%BC%8F%E7%BD%91%E7%BB%9C%AF%BE%E7%A8%A8%8B/6821056?>
- [12] Guan Xin. "Public Benefit" to "Private Customization" - Research on the Development of MOOC to SPOC [J]. *University Library Work*, 2015, 35 (1): 19-21.
- [13] Wang Ye, Wang Chonghao, Cao Jian, etc. From MOOC to SPOC: Innovation and Reflection on Information Literacy Education Model in Colleges and Universities [J]. *Science and Technology Economic Market*, 2018 (10): 141-143.
- [14] Spc\_Baidu Encyclopedia <https://baike.baidu.com/item/spoc/599393?Fr=aladdin>
- [15] Teng Zhixia, Ji Mingyu, Guo Qinyu. Design and practice of mixed teaching mode based on SPOC [J]. *Heilongjiang Education (Theory and Practice)*, 2019 (Z1): 76-78.
- [16] Xie Shoumei. Research on Embedded Subject Services in Universal Knowledge Environment [J]. *Library Work and Research*, 2013 (1): 27-29, 42
- [17] Liu Ge. Reader-centered information literacy education model in embedded universities [J]. *Journal of Library Science*, 2013, 35 (1): 60-61.
- [18] Jiang Yuanyuan, Zhang Xiaojuan. A comparative study of information literacy index system and curriculum design between Chinese and American universities [J]. *Library and information knowledge*, 2010 (4): 58-64.