

## A New Reciprocal Teaching Approach for Information Literacy Education under the Background of Big Data

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**Abstract**—The library is an important platform for readers to acquire information, and also shoulders the responsibility to cultivate readers' information literacy. How to enhance information literacy is a public service issue that warrants prompt solution. In this study, we establish a reciprocal teaching mode composed of four elements: teacher, student, learning content and interaction-supporting platform, based on the reciprocal teaching theory, in combination with the characteristics of information literacy training in information-based libraries, uses virtual reality (VR) technology to produce verisimilar teaching resources and build a virtual reading environment and a virtual reading community, to enable readers to discuss, read and evaluate under a dynamic reading mode. Meanwhile, a new reciprocal teaching technique of "Rain Classroom" is also introduced innovatively. We first conduct a quantitative evaluation on information literacy using fuzzy comprehensive evaluation method, then verify and correct the evaluation results using data mining technology, so that objective and accurate results can be obtained for the evaluation of readers' information literacy. After the implementation of this library learning mode, through a questionnaire survey and analysis, it is concluded that the proposed mode can help the library spread knowledge, improve the effect of information literacy.

**Keywords**—Big data; reciprocal teaching mode; information literacy; library service

### 1 Introduction

At present, with the expansion of the scale of network users around the world, we are faced with a realistic problem, that is, that the information literacy of users cannot keep up with the keep abreast of the Internet. Information literacy, also known as "information diathesis", originated from library literacy, and was first raised in the report of the American Information Industry Association. This report pointed out that information literacy was "an integrated set of skills to use information tools and sources to solve problems" [1]. There are a large quantity of information and resources in the libraries. With the advent of information age and big data era, the information and resources possessed by libraries are no longer restricted by time and

space, and all walks of life and their staff are given more convenient opportunities to learn and grow [2]. The network literacy of readers, as a big and active group of network users, has long been the focus of public attention. However, since information education started late and hasn't been fully popularized, library readers seem to have a particularly inadequate information level during actual work and study. At the same time, readers can upload information via the Internet, which will inevitably contain some information resources that make against the health of network environment.

Mobile Internet and cloud computing play an increasingly vital role in the current information era. During the management and consultation of knowledge resources, the main impact they produce is the diversification of readers' reading [3]. The way in which readers access information has evolved from looking up traditional paper materials to reading through Internet technologies, for example, mobile communication technology. Nowadays, public libraries are also undergoing reforms and progress, from physical libraries, digital libraries to libraries based on big data technology. The reading services they offer also expand from simple borrowing and returning of resources to all-sided reference services and knowledge services, etc.

On this basis, in this paper, by taking the training of "information literacy" of public libraries as the reform content and combining with the interactive dynamic learning mode proposed in this study, we introduce virtual situated learning and the mobile communication technology of "Rain Classroom", and build a new dynamic reading effect evaluation mechanism, based on the characteristics of information literacy training in library, with a view to improve readers' information literacy and set up a new public library learning mode that is suitable for the development of big data society.

## **2 State of the Art**

The Internet has meliorated the way that people live and work, but the development of technology always reduces information to a state of big data size, massive information and messy content. In this case, the level of information literacy directly determines the efficiency and fairness in people's use of information resources. UNESCO issued Media and Informational Literacy Policy and Strategy Guidelines, in the hope of propelling technical progress and increasing the level of information literacy [4]. That same year, International Federation of Library Associations (IFLA) published Lyon Declaration on Access to Information and Development, calling for ensuring that everyone had access to, and was able to understand, use and share the information that was necessary to promote sustainable development and democratic societies [5]. This posed higher requirements for the information literacy education of library users. Since the starting time of public information literacy education, educational level of citizens, policy and legal guarantees, fund investment and research support, etc. vary from country to country, the information literacy education level of the international community also differs dramatically.

At present, developed countries have noteworthy advantages and unique ways to promote information literacy. The United States identified October every year as “National Information Literacy Awareness Month”. Since then, celebrations are organized every year to enhance the information literacy awareness of the whole nation, popularize relevant achievements in this field and offer a communication platform.

National Commission on Libraries and Information Science (NCLIS) [6] brought up information literacy standards for primary, secondary and higher education, so as to adapt to the development of information literacy education and changes in social needs. The Rochdale Digital Festival, jointly sponsored by the British Public Library [7] and more than 30 enterprises and social organizations, for example, Google, has been highly praised by local people for training information literacy skills, like the search of e-books and healthcare information, etc., while showing high-end digital technologies to the public. In an effort to drive the information literacy education in library, ALA set up an Office for Diversity, Literacy and Outreach Services, developed the toolkit “Literacy for All: Adult Literacy through Libraries” and the course “Literacy through Libraries”, published a fake news screening kit on its official website, to improve the users’ ability to discriminate information through guideline, tutorial, project, seminar, and collection of rumor identification websites. Subsequently, Singapore also initiated a National Information Literacy Programme (NILP) [8], to allow Singaporeans with different needs from different groups to receive good information literacy education. In 2013, a public information literacy education campaign called Source, Understand, Research, Evaluate (S.U.R.E.) was officially implemented. At the same time, to promote the information literacy of young readers, this country partnered with Common Sense Education in the U.S. to develop a “toolkit” to help young readers improve their media literacy skills. Australia and New Zealand also keep learning from the practical experience of other countries in terms of information literacy education. Two countries jointly set up Australian and New Zealand Institute for Information Literacy (ANZIL) [9], to spur the development of information literacy education of two countries. To increase the national level of information literacy, South Korea [10] practiced information literacy education in primary and secondary schools. One of the five major content systems of information technology education in primary and secondary schools was “the understanding and ethics of information”, which ranged from the 1st grade in primary school to the 1st grade in senior high school. Also, it has enforced an “Information Literacy Certification System” in secondary schools since 2001.

So far, developing countries also attach great importance to the design of public information literacy policies or frameworks. A report by UNESCO indicates that developing countries that have established information literacy frameworks are concentrated in Africa, Southwest Europe, Southeast Asia and South America, of which South Africa is the country with the most advanced media literacy education in Africa. Studies by many Chinese scholars on the information literacy education of students in primary and secondary schools in China reveal that all participants lack organic coordination and cooperation, as well as a scientific and sound “information literacy education framework” [11]. China is home to about 1/5 of the world’s

population, and its science and technology, economy, information technology, etc. have grown rapidly. However, the level of public information literacy education is desperately incommensurate with such development. Thus, how to reinforce public information literacy education has aroused great attention of the country. For example, libraries in Hunan Province and Hubei Province of China [12] have given offline teaching in the teaching of information literacy, including working with libraries in universities and giving free face-to-face information literacy lessons in citizen communities. The teaching modes of information literacy included a variety of on-site trainings, such as expert lecture, case analysis and simulated training, and also activities such as the International Reading Day, the International Day for Universal Access to Information, National Information Literacy Awareness Month and Information Search Contest, etc. By using data technology, some large libraries launch online teaching, online self-test and online interactive games, develop non-profit or commercial App and carry out public information literacy education in a variety of ways. For example, the TEDA Library in Tianjin, China [13-14] offered a “Digital Readability: TEDA Open Class for Information Literacy”, to generalize the theory of information literacy, promote the information awareness and information ability of the public and draw up corresponding public incentives.

By sorting out and analyzing literature, we discover that according to existing studies on the improvement of citizens’ information literacy and enhancement of the information literacy learning mode of library in various countries in the world, still citizens have a low information literacy, especially the ability to perceive network information and the ability to analyze and repudiate information. Secondly, no mechanism is available to correctly evaluate the network literacy level of library users, which hinders the development of library citizens’ information literacy. Our study believes that reciprocal teaching theory can be adopted as the Library’s training strategy of information literacy, and the current context of rapid development of big data especially offers a necessary guarantee for the reciprocal teaching mode of information literacy, and can be fully employed in the training of library information literacy. For the time being, no studies on the training of readers’ information literacy by the reciprocal teaching mode in China have been reported. In this paper, we carry out a research and analysis on this issue through a large number of survey data, teaching practice and outstanding cases, and explore the path to train readers’ information literacy through reciprocal teaching mode.

To begin with, our study put forward reciprocal teaching theory innovatively, combines VR technology with library multimedia information database and build a new information literacy learning mode. Secondly, a new multimedia teaching method “Rain Classroom” is incorporated in the learning process of information literacy. A virtual reading community and a virtual reading and discussion area are created, etc. At the same time, a new dynamic reading effect evaluation mechanism is formulated through data mining technology, to provide a reference for libraries when they investigate the training of information literacy.

### 3 Training of Information Literacy Through Reciprocal Teaching Mode

#### 3.1 The application of VR technology in the reciprocal teaching of libraries

Reciprocal teaching [14] is a new teaching method that emphasizes the unity between communication, cooperation and computer use. Today, the rapid development of electronic technology and multimedia interaction has given birth to reciprocal teaching. The reciprocal teaching mode firstly matches readers, to make them act as trainers and trainees respectively. Secondly, the teacher first lets the student acting as the trainer ask a question and then explain the answer. Then, he/she lets the student acting as the trainee answer the question, the reader acting as the trainer observes and listens and gives hints in a timely manner. Finally, the two readers swap roles.

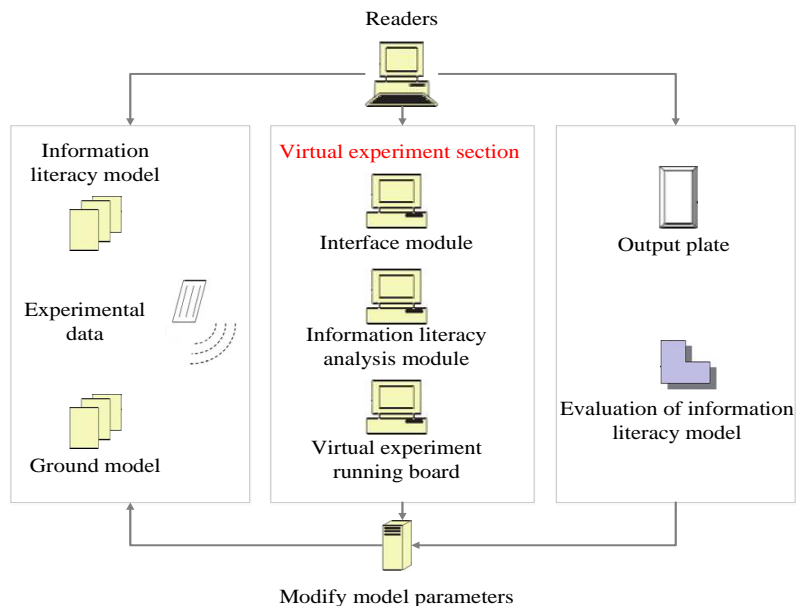


Fig. 1. The Application of VR Technology in the Reciprocal Teaching in Library

As can be seen from Fig. 1, the context of big data offers a favorable technical guarantee for reciprocal teaching. First of all, a training system for information literacy is built, key learning contents are defined, a simulated environment for core literacy is created and relevant data are collected. Secondly, readers enter the section of “simulative learning” to learn theoretical knowledge about information literacy and do simulated exercise. Thirdly, the learning results of information literacy, as well as reader’s assessment data about the learning process and results are output. At last, the information literacy learning system is optimized on an on-going basis.

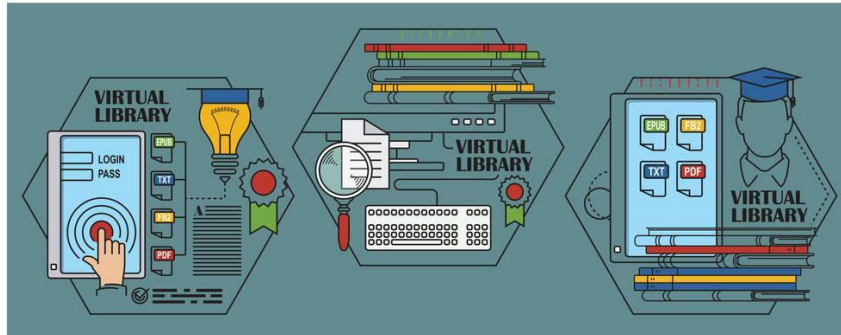
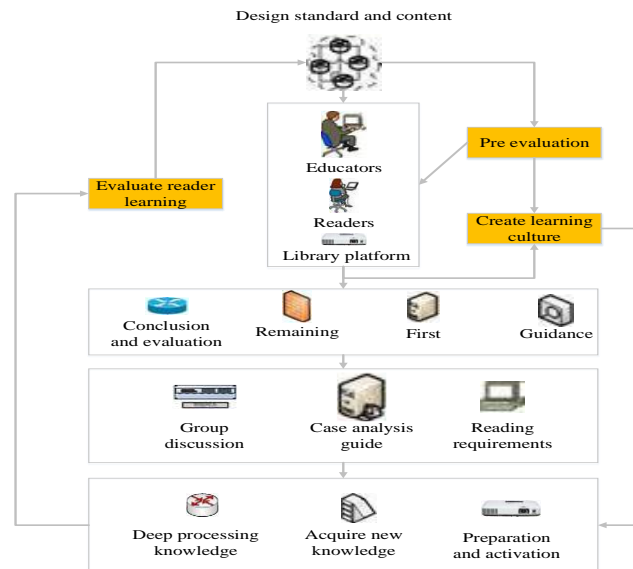


Fig. 2. The Application Mode of Immersive VR in Libraries

Immersive VR, which provides participants with a fully immersive experience, creates a feeling of staying in a virtual world and thus can best demonstrate the effect of VR. Fig. 2 above shows the application mode of immersive VR technology in libraries. Relevant devices include head-mounted display, walking device, cave-type stereoscopic display unit, data glove and spatial position tracker, etc. An obvious characteristic of immersive virtual reality is that a closed scene and acoustic system can be adopted to isolate the user's audio-visual senses from the outside world, so that the user can be fully immersed in a computer-generated environment. It has a high degree of immersion, good system integration and is featured with parallel processing.

### 3.2 Building of a reciprocal teaching mode of information literacy based on big data technology

Traditional libraries only allow readers to choose the information they need and learn by the information. It is hard for them to get direct answers when meeting difficulties and problems. Readers need to search for more information by themselves, their learning efficiency is low, and there is a lack of specific guidance. In this study, we come up with a new reciprocal teaching mode of information literacy, and the conception diagram is shown in Fig. 3.



**Fig. 3.** The Conception Diagram of the Reciprocal Teaching Mode of Information Literacy

As can be seen from Fig. 3, the reciprocal teaching mode of libraries can first establish good teaching standards and teaching plans, and then the educators transmit them to readers using network data technology. The education forms of information literacy can be diversified, such as: educator teaching, case analysis and interpretation, group discussion and simulated practice class, etc. After learning, readers submit the learning results to the curriculum platform. At the same time, the curriculum platform also allows them to upload learning exercise and extended exercise. Readers upload the exercise that has been completed, which is then examined and approved by the educator. When readers run into knotty problems during learning, they may also interact with each other to solve the problems, with the help of the platform. Information literacy reciprocal teaching can integrate the fragmented time of readers efficiently, meet different demands of readers and create a good learning environment, to facilitate the practice, learning, feedback and evaluation of readers and continue to improve readers' information literacy.

### 3.3 Evaluation of library information literacy based on fuzzy mathematics and data mining

In this paper, based on a survey into readers' information literacy level, we first conduct a quantitative evaluation on readers' information literacy using fuzzy comprehensive evaluation method, and then verify and correct the quantitative evaluation results of readers' information literacy using data mining technology, so that objective and accurate results can be obtained for the evaluation of readers'

information literacy. Among them, fuzzy teaching method firstly evaluates every factor separately and then evaluates all of the factors as a whole.

When a single factor is evaluated as A, its ranking set is V= [very good, good, average and poor], and its evaluation factor set is R=[A1, A2, A3]. According to the weight ratios of A1, A2 and A3 in the membership table, it can be conclude that R=(0.40, 0.40, 0.20);

M ( ^, ∨ ) operator is used to judge Factor A according to the principle of maximum membership degree, and the single factor evaluation of A can be obtained as:  $A=R * V$  , i.e.:

$$\begin{aligned}
 A &= (0.40, 0.40, 0.20) * \begin{Bmatrix} 0.60, 0.30, 0.10, 0 \\ 0.70, 0.20, 0.10, 0 \\ 0.80, 0.20, 0, 0 \end{Bmatrix} \\
 &= \{ ((0.40 \wedge 0.60) \vee (0.40 \wedge 0.70) \vee (0.20 \wedge 0.80)) \\
 &\quad , ((0.40 \wedge 0.30) \vee (0.40 \wedge 0.20) \vee (0.20 \wedge 0.20)), ((0.40 \wedge 0) \vee (0.40 \wedge 0) \vee (0.20 \wedge 0)) \} \\
 &= \{ (0.40 \vee 0.40 \vee 0.20), (0.30 \vee 0.30 \vee 0.20), (0.10 \vee 0.10 \vee 0), (0 \vee 0 \vee 0) \} \\
 &= \{0.40, 0.30, 0.10, 0\}
 \end{aligned}$$

Since the sum of the single factor evaluation of A is  $=0.40+0.30+0.10+0=0.80$  , the result is not equal to 1. Through normalization, it is concluded that  $(0.40/0.80, 0.30/0.80, 0.10/0.80, 0/0.80) = (0.50, 0.375, 0.125, 0)$  .

Using the same calculation method, we can find that:

The single factor evaluation of B  $= (0.40, 0.40, 0.20, 0)$

The single factor evaluation of C  $= (0.43, 0.285, 0.285, 0)$

The single factor evaluation of D  $= (0.60, 0.20, 0.10, 0.10)$

Comprehensive evaluation is the second step of this research mode. When the comprehensive evaluation grade is expressed as u, then u=[very good, good, average and poor]. Let the comprehensive evaluation factor set be S= [A, B, C, D]. According to the weight ratios of A, B, C and D in the membership table, it can be learned that S= (0.20, 0.30, 0.30, 0.20). According to the single factor evaluation results calculated above, we can obtain the results of comprehensive evaluation:

$$S * U = (0.20, 0.30, 0.30, 0.20) * \begin{Bmatrix} 0.50, 0.375, 0.125, 0 \\ 0.40, 0.40, 0.20, 0 \\ 0.43, 0.43, 0.285, 0 \\ 0.60, 0.20, 0.10, 0.10 \end{Bmatrix} = (0.34, 0.34, 0.32, 0)$$

The results of comprehensive evaluation indicate that 34% of the evaluators believe that the educator's information literacy is "excellent", 34% believe that the educator's information literacy is "good", 32% believe that the educator's information literacy is "medium", and no evaluator holds that the educator's information literacy



is “poor”. The evaluation data are quantified, “excellent” is denoted as 95, “good” is denoted as 85, “medium” is denoted as 75 and “poor” is denoted as 50. Then the comprehensive evaluation score of readers’ information literacy is:

$$Z = 0.34 * 95 + 0.34 * 85 + 0.32 * 75 + 0 * 50 = 85.2$$

By taking a hundred-mark system as the calculation criteria, we can conclude that “excellent” [85-100], “good” [75-84], “medium” [60-74], “poor” [0-59], so the educator’s information literacy is rated as “excellent”. Based on the above formula and train of thought, the evaluation results of the evaluator are shown in Tab. 1:

**Table 1.** The Evaluation Indicators of Level 1 Indicators

	Information Consciousness	Information Knowledge	Information Ability	Information Ethics	Overall Evaluation
Evaluator 1	19	28.02	27.69	19	95
Evaluator 2	19	27.2	28	17.8	95
Evaluator 3	18.1	25.9	27.6	19	95
Evaluator 4	19	27.05	27.5	18.2	85
Evaluator 5	17.4	27.75	27.25	18.2	95
Evaluator 6	18.6	28.05	26.1	19	85
Evaluator 7	18.2	26.7	27	10	95
Evaluator 8	17.4	28.5	28.5	19	95
Evaluator 9	17.4	28.05	28.5	16.2	85
Evaluator 10	18.2	27.9	28.5	19	95

The values in Tab. 1 are discretized. Among Level 1 indicators, “excellent” is denoted as 90, “good” as 80, “medium” as 70, and “poor” as 50. According to the weight of each Level 1 indicator, we calculate the scores of its four options, 18, 16, 14 and 10 points of information consciousness and information ethics correspond to “excellent”, “good”, “medium” and “poor”, which are expressed by A, B, C and D respectively. 27, 24, 21 and 15 points of information knowledge and information ability correspond to “excellent”, “good”, “medium” and “poor”, which are expressed by A, B, C and D respectively. 95, 85, 75 and 50 points of overall evaluation correspond to “excellent”, “good”, “medium” and “poor”, which are expressed by A, B, C and D respectively. Tab. 2 shows the processing results.

**Table 2.** Statistics of the Discretization of Evaluator Data

Sample	I1	I2	I3	I4	I5
1	A	A	A	A	A
2	A	A	A	B	A
3	B	B	A	A	A
4	B	B	A	A	B
5	B	A	A	B	A
6	A	A	B	A	B
7	A	B	A	D	A
8	B	A	A	A	A

When the “overall evaluation” is A (excellent), it is directly related to Level 1 indicators. Since generally speaking, the reliability is required to fall between 70% and 80% in small-scale evaluations, here we assume the minimum support to be 70% and the minimum confidence to be 70%. We search and transform based on the condition that the overall evaluation result in Tab. 2 is A, we can generate a supportive Apriori algorithm and conclude that the data above have high reliability. It is concluded that the evaluation of library information literacy based on fuzzy mathematics and data mining has high feasibility and validity.

## **4 Teaching Example and Effect**

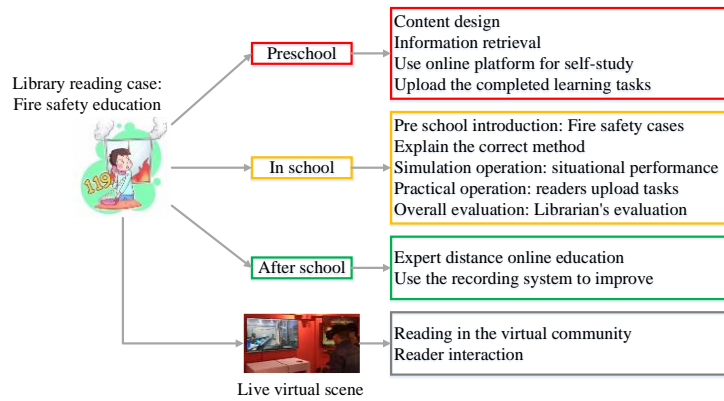
### **4.1 Teaching example**

In this study, 120 readers who read in a large library in Shandong Province, China from January 2019 to January 2020 are investigated. The training mode of information literacy is reciprocal teaching mode in the context of big data.

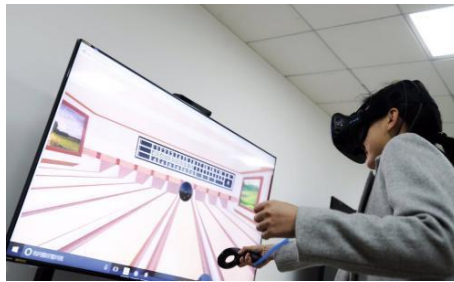
This study incorporates the learning method of “Rain Classroom” based on multimedia technology. “Rain Classroom” is a hybrid intelligent teaching tool developed and popularized by Online Education of Tsinghua University, China. Blended learning is a teaching method that unites traditional classroom with online classroom. The “Rain Classroom” feature is based on the most common Powerpoint and WeChat, in the hope of linking the library’s digital book resources and readers, delivering all-round functions, including preview before class, interaction during class and summary after class. It fits for a wide range of age groups and is easy to operate. In the “Rain Classroom”, the library database can push materials with information educative videos, information popularizing essays, information prize-giving quizzes, etc. to readers’ mobile phones. In the virtual community, readers can communicate with each other, give timely feedback on some issues to librarians, answer questions and interact by making bullet-screen comments in real time at the library or through mobile phone and other electronic terminals. This teaching tool integrates the advantages of online and offline resource sharing.

Through an organic bond of pre-class preparation, in-class implementation and after-class expansion, the library extends the classroom forward and backward, spurs readers to increase investment of time and energy in learning and form the habit of autonomous learning. The library inspires the readers’ interest in learning, and helps readers understand core knowledge and master key abilities, by adopting information technology, developing a corresponding VR simulation system, recording operating videos with learning APP software and integrating the educational resources of enterprises. Through reinforcing the interaction between teachers and students, it enhances the learning effect. The teachers follow the principle of uniting “teaching, learning, doing and evaluating” into one, apply such teaching strategies as “learning by doing”, “doing while learning” “consolidating by doing” and “evaluating while doing”, combine “teaching” and “learning” organically and assess the effect of practical teaching through an AHP evaluation model. By taking the reading

knowledge of Safe Use of Fire by Citizens in the library as an example, Fig. 4 shows a teaching model constructed by combining virtual technology with reciprocal teaching theory. Figs. 5-7 show the scene where citizens learn information literacy through the library's reciprocal teaching mode and virtual technology.



**Fig. 4.** Schematic of Information Literacy Education of the Reciprocal Teaching Mode of Library



**Fig. 5.** The Scene Where Readers in the Library Access Information through Interactive Reading



**Fig. 6.** The Scene Where Young Readers Read Using the Library Virtual Technology



**Fig. 7.** The Scene Where Young Readers Read Using the Library Virtual Technology

\*: <http://pgqtsg.mh.libsou.com/newsinfo?id=4575&cid=2>

#### 4.2 Teaching effect

In this paper, in accordance with the characteristics of training of library information literacy and combined with the learning process of virtual teaching and reciprocal teaching, we design two kinds of reader questionnaires as the evaluation criteria of the proposed learning mode. The questionnaires included 90 points for “excellent”, 80 points for “good”, 70 points for “medium” and 50 points for “poor” respectively. The results before and after interactive education of readers’ information literacy are shown in Tabs. 3 and 4. Through a comparison of the data in the above table, we obtain the following results:

**Table 3.** Statistics of Readers’ Key Capabilities before Reciprocal Teaching

Variable	Item	Score
Learning ability	Reading enthusiasm	70
	Interest in practical operation	85
	Problem-solving ability	85
	The ability to integrate fragmented time	80
	The ability to understand and use information	75
Mastery of knowledge	To clarify the important and difficult points in knowledge	80
	To attach importance to preview before class and review after class	90
	Hands-on ability	90
Other aspects	Lively reading atmosphere	80
	Reader interaction and timely feedback	75

**Table 4.** Statistics of Readers’ Key Capabilities after Reciprocal Teaching

Variable	Item	Score
Learning ability	Reading enthusiasm	95
	Interest in practical operation	94
	Problem-solving ability	95
	The ability to integrate fragmented time	89
	The ability to understand and use information	92
Mastery of knowledge	To clarify the important and difficult points in knowledge	90
	To attach importance to preview before class and review after class	90
	Hands-on ability	95
Other aspects	Lively reading atmosphere	95
	Reader interaction and timely feedback	95

Through a comparison of the scores of readers’ integrated abilities of information literacy before and after reciprocal teaching (Tabs. 3 and 4), it is found that readers have got significantly improved in both learning ability and mastery of knowledge. At the same time, the learning atmosphere of reciprocal teaching mode has been better-received by readers than that of traditional classroom. On the reciprocal teaching platform, teachers and students can interact actively, students’ questions can be fed back in a timely manner, and all kinds of evaluation indicators are excellent. This is a highly-efficient teaching mode. The main reasons include: first of all, reciprocal teaching in conjunction with virtual technology give equal considerations to readers from different age groups, with different educational levels. “Rain Classroom” can offer information literacy quizzes flexibly and the answers are presented in the form of bullet-screen immediately through three-dimensional data analysis, and such kind of reading mode makes the learning process more vivid and interesting. Secondly, the electronic library in the form of network data can achieve the combination of in-library learning and out-of-library learning, so that readers can overcome the restriction of space and time effectively and be empowered to learn. The administrator of virtual community plays the role of leading and consolidating knowledge, which is conducive to the improvement of readers’ learning independence and autonomy. At the same time, a dynamic data analysis can be made through the evaluation criteria and each learning and reading link, “pre-class, in-class and after-class”, can be assessed in a scientific way, to offer complete and three-dimensional data support, personalized reports and automatic task reminders to the library, so that the administrator can get the whole picture of the readers’ learning, learn about the learning effect in the virtual learning community and increase teaching improvement measures and the pertinence of information knowledge, thereby increasing readers’ reading enthusiasm and promoting the learning efficiency of information literacy. More importantly, this learning mode can truly facilitate the learning exchanges and interactions between readers and librarians and between readers. The imparting of information literacy knowledge can be done on all kinds of communication devices through virtual technology and reciprocal teaching mode, to promote the communication and feedback of readers. The administrator can keep current on the readers’ learning, ideas and questions and answer their questions at any time.

Likewise, readers can share their own experience and fruits with each other, so that the learning contents can be scheduled more rationally, the readers' reading atmosphere can be heightened, the abilities to understand and use information literacy knowledge can be reinforced. To sum up, the reciprocal teaching of information literacy can make full use of resources in the big data era, to cater to the needs of readers, create a cheerful classroom atmosphere and enhance readers' learning interest and learning abilities, so that readers can learn autonomously and get continuous self-improvement in a relaxing and pleasant environment.

## **5 Conclusion**

In this paper, library and reader's information literacy training are banded together. First of all, the importance and problems in the library's training of information literacy through reciprocal teaching mode in the context of big data are illustrated. Secondly, the teaching design, teaching plan and key points in the library's training of information literacy through reciprocal teaching mode, and an evaluation system of book information literacy based on fuzzy teaching and data mining are introduced. Effective and feasible findings are achieved through practical research and we mainly arrive at the following conclusion:

1. The reciprocal teaching mode of information literacy can offer learning opportunities to readers from all walks of life, improve their information literacy, and further promote their autonomous learning abilities.
2. Reciprocal teaching mode can promote readers' learning ability, mastery of knowledge, liven up the classroom atmosphere, stimulate teacher-student interaction, facilitate information feedback, push forward learning evaluation and relieve readers' learning pressure. It is an important path to train information literacy.
3. The reciprocal teaching mode of information literacy values learning evaluation and feedback mechanism. The evaluation system of library information literacy based on fuzzy mathematics and data mining is a valid evaluation mode. The evaluation results are objective and valid, and it can achieve the continuous improvement of reciprocal teaching mode and push ahead the development of information literacy.

Education. On the other hand, the context of big data provides lots of information, resources and data for reciprocal teaching, lays a foundation and offers a guarantee for the development of reciprocal teaching mode.

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