Current Status and Strategy of Information Literacy of Chinese Teachers in Primary and Secondary Schools in Southwestern China

Bing Wang and Xiang-Hao Liu

***Abstract*—Information literacy for teachers is the ability to retrieve, analyze, store, use, disseminate, and create information in the process of teaching. By analyzing the results of questionnaires done by hundreds of primary and secondary school Chinese teachers in southwestern China, we can conclude that their information literacy and awareness are relatively weak. Therefore, we suggest that information literacy of this group can be improved by working on these three areas: 1) raise Chinese teachers' information awareness; 2) strengthen the training of Chinese teachers; 3) strengthen the ability of integrating information technology and Chinese course of teachers.**

***Index Terms*—Chinese teachers, information literacy, information technology, primary and secondary schools.**

I. Introduction

The implementation of China's western development strategy coupled with the global information technology (IT) revolution, had led to more IT resources being made available for teaching in primary and secondary schools in southwestern China. This improvement in hardware had considerably enhanced the learning experience of the students, but it had also increased the pressure on teachers to be able to exploit these tools. This development in hardware had been made possible by the national western development policies. But there still exists a great disparity between China's western and eastern region – eastern region's teachers' information literacy is much higher than that of the western region. Thus, to improve the quality of teaching, it is essential for southwestern primary and secondary school teachers to integrate IT into the teaching of Chinese, and to understand what role the teachers play in this new learning environment.

II. The Overview of Information Literacy

A. The Meaning of Information Literacy

Information literacy could be fostered by education, and it is an ability or training of obtaining information, using information, and exploring information from outside. It contains information awareness and emotion, information moral ethics, information common sense and information capacity [1]. It is an essential skill for educating children for the 21st century [2]. From the above definition, we can see that information literacy for teachers is the ability to retrieve, analyze, store, use, disseminate, and create information in the process of teaching [3].

B. The Content of Information Literacy for Chinese Teachers in Primary and Secondary Schools

The primary responsibility of Chinese teachers is to improve a student's language abilities, in terms of listening, speaking, reading and writing, and for them to use it well in everyday life. IT had become an integral part of education; it is therefore critical for teachers of primary and secondary schools to have a certain level of information literacy if we were to improve the teaching quality of Chinese courses.

With IT being part of everyday life, Chinese teachers of primary and secondary schools should not only master the necessary knowledge of using IT in teaching, they should also enhance the intellectual and emotional quotient of students by employing appropriate IT in teaching. This is with the aim that a student' over learning quality will be enriched. Information literacy of teachers mainly includes four aspects: information awareness, information knowledge, and information ability and information ethics [4].

III. Study Design

A. Method and Tool

This study obtained its data mainly from questionnaires and site visits, which were then supplemented by interviewing individual teachers. We designed questionnaires that were mainly closed-ended, with a few open-ended questions. Microsoft Office and the software SPSS 15.0 were used mainly to analyze the data collected.

B. Object of Study

Teachers in southwestern China were selected at random to take part in this study, this region includes the provinces of Chongqing, Sichuan, Guizhou and Yunnan. The sampling included different cities, counties and townships, including key middle schools, ordinary middle schools, key elementary schools and ordinary elementary schools.

Researchers visited some schools and received a huge amount of accurate and detailed first-hand information.

C. Design of the Questionnaire

To achieve the aforementioned aims, we designed questions that involved information awareness, information knowledge, information ability, and information ethics. The

Manuscript received November 6, 2015; revised January 20, 2016.

Bing Wang is with the National Institute of Education, Nanyang Technological University, Singapore (e-mail: bing.wang@nie.edu.sg).

Xiang-Hao Liu is with the Chinese People's Armed Police Forces Academy, Langfang, China (e-mail: sxtylxh_423@163.com).

main objects of this study are Chinese teachers of primary and secondary schools in southwestern region.

In addition to questionnaires, we also interviewed individuals to add depth to this research. In this way, we gained a lot of valuable materials that were relevant to this study.

Random sampling method was employed for the distribution of the 400 questionnaires – 100 for each of the four provinces. We took back 98, 91, 93, and 95 valid questionnaires from the provinces of Chongqing, Sichuan, Guizhou and Yunnan respectively. Thus, the return rates of 98%, 91%, 93%, and 95%, met education survey requirements.

IV. Result Analysis

A. Weak Information Awareness

Information awareness refers to teachers' cognition to the meaning and role of information technology, as well as comprehensive will of active use. The results of the questionnaire are presented as follows:

For the question "Do you often learn dynamic information about Chinese language teaching reforms through computer information technology?" the statistical data are shown in Fig. 1.

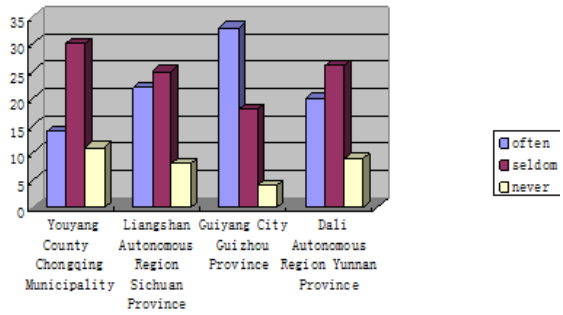

Fig. 1. Comparison of teachers' information awareness in southwestern primary and secondary schools in different areas I.

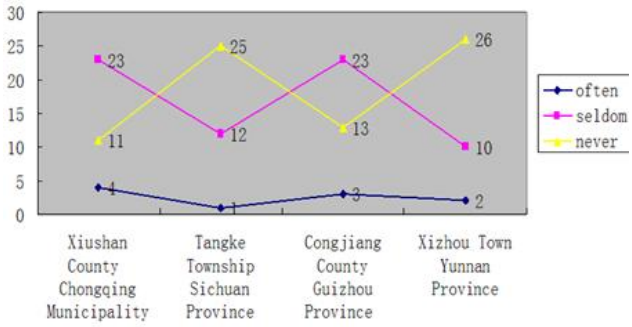

Fig. 2. Comparison of teachers' information awareness in southwestern primary and secondary schools in different areas II.

We could see that among the four distribution points in the questionnaire, about 50% of the respondents in Chongqing Youyang, Sichuan Liangshan, and Yunnan Dali seldom learned Chinese language teaching reforms via computer IT. While in Guiyang, most language teachers learned the information via computer information technology. In addition to that, a considerable number of teachers in these four areas never received the information through computer information technology. In summary, we could see that primary and secondary school Chinese teachers in Capital cities had stronger information sense than those in prefectural-level cities in southwestern China.

Next, the question "Do you often discuss with your colleagues about the integration of information technology and Chinese teaching?" had the following statistical results provided in Fig. 2.

We selected 38 valid questionnaires from each province for statistical analysis. The data showed that there were only four, one, three and two teachers who often discussedthe use of IT in Chinese teaching with their colleaguesin Xiushan County of Chongqing, Abazhou Tangke Township of Sichuan, in Congjiang County in Guizhou, and Dali County of Yunan respectively. While there were 23, 12,13, and 26 teachers in the respective provinces who seldom did this; and 11, 25, 13 and, 26 teachers who never discussed this with their colleagues. From these data, we conclude that the overall teachers' information awareness is bad, and urban teachers performed better that of teachers in counties and townships.

For the question "Are you willing to learn multimedia information technology by self-learning using break time?" based on questionnaires, the statistical data are shown in Fig. 3.

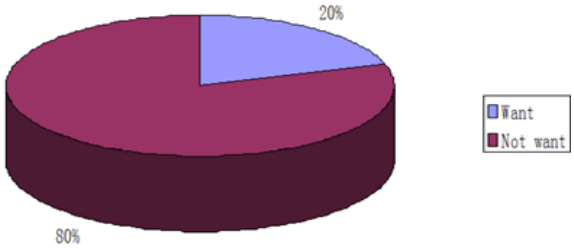

Fig. 3. Chinese teachers' information awareness in Southwestern primary and secondary schools.

From Fig. 3, we could see that, for the entire Southwestern areas, as many as 80% of the Chinese teachers in primary and secondary schools were not willing to use break time to learn multimedia information technology by themselves, and only 20% of them expressed their willingness to do so. This showed that the awareness of the benefit of learning and using IT in teaching is still relatively weak in southwestern China.

From the above analysis we can initially draw the following conclusions:1) The overall information awareness of Chinese teachers in primary and secondary schools in southwestern regions is relatively weak; 2) The information awareness of teachers in counties is weaker than that of teachers in more urban areas of the southwestern region; 3) The information awareness of teachers in prefecture-level cities is weaker than that of teachers in capital cities in southwestern region.

B. Lack of Information Knowledge

Information knowledge is the basis of information literacy. Without information knowledge, there would be no training and improvement of information literacy. The results of the questionnaire are as follows: In the survey, when asked the question "Do you know of information theory in knowledge?" 77% of the teachers merely understood IT as multimedia technology or courseware, while 65% of the teachers consider IT to be abstruse, hence it would be of no use to them even if they learned it.

C. Lower Capacity of Information Collection and Analysis

In the survey, for the question "Can you proficiently use the Internet to retrieve information?" the statistical data are shown in Fig. 4.

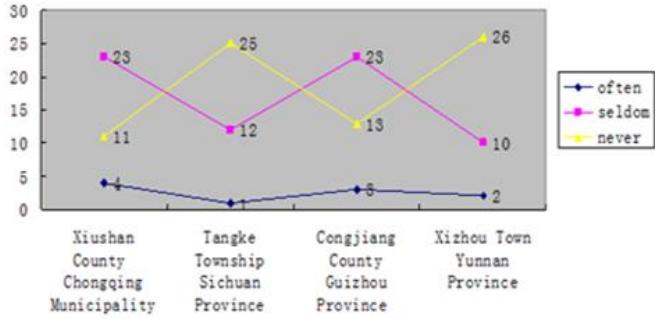

Fig. 4. Chinese teachers' information collection and analysis status in Southwestern primary and secondary schools.

The figure above showed that 376 valid questionnaires were returned and one of which was invalid. After tabulation, we found that 158 teachers could not design multimedia courseware, but they could use it for teaching. While 98 teachers had poor ability in making multimedia courseware, and only 35 teachers were familiar with making and using it. There were six teachers who never used multimedia courseware. The data could well show that Chinese teachers' IT literacy is relatively poor in primary and secondary schools of southwestern China.

D. Fuzzy Cognition to Information Ethics

In the survey, for question "What is information ethics?" the statistical data are provided in Fig. 5.

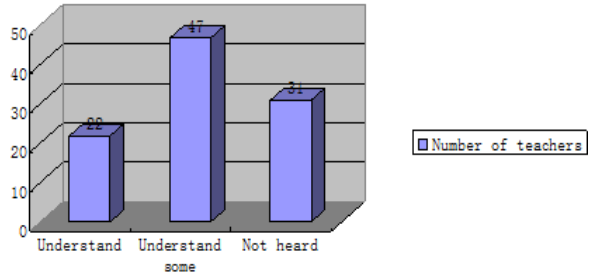

Fig. 5. Chinese teachers' information ethics status in southwestern primary and secondary schools (%).

From Fig. 5, we could see that for the whole southwestern region, 31% of the Chinese teachers of primary and secondary schools have never heard of information ethics; 47% of them could understand some, but they only have a fuzzy cognition of it.

V. Strategies to Improving Information Literacy

A. Foster Chinese Teachers' Information Awareness

As we discussed above, information awareness is an important factor that affects information literacy of Chinese teachers in primary and secondary schools. This has an effect on teachers' potential of obtaining and using information, and directly affecting the teachers' level of need for information.

However, our results showed that information awareness is weak among teachers surveyed. Our interviews with teachers shed light on why this was so – Chinese teachers were more conventional in their thinking and teaching methods and most of them had a fear of IT. Chinese teachers in the surveyed primary and secondary schools were used to their old way of teaching and they saw no need of changing this. IT was only employed on the peripherals of teaching – outlines of classes, textbooks, and teaching references. Therefore, it would take some time for these teachers to pick up and to overcome their fear of IT. In addition to that, information awareness of many leaders in educational administrative departments is not high, so it would be difficult for them to put forward high requirements for teachers. This has also contributed to the poor information awareness among Chinese teachers.

To solve the problem, educational administrative departments need to fully understand the importance of information awareness and actively guide Chinese teachers in primary and secondary schools to breakaway from their traditional thinking. At the same time, these departments should provide the teachers with resources for them to put IT to good use in class.

B. Strengthen the Training of Chinese Teachers

From the current situation, we could see that there is a lack of training that could improve information literacy among Chinese teachers, and this is not ideal. It is reported that 50% of the teachers consider current training to be not ideal. 45% of them think that current training places too much emphasis on skills and theories, which has little relation to teaching. Another 30% of teachers revealed that they do not have the time to participate in full time courses due to their heavy teaching workload [5]. However, without intensive training, it is not possible for teachers to effectively obtain modern education technology, and thus unable to keep up with the development of modern education. We suggest that teachers should be made to go through both short-term and long-term training. In addition, training should be both school-based and home-based – teachers engage in self-learning. Meanwhile, some other ways such as online teaching and training would be feasible [6].

C. Integrating Information Technology into Chinese Course

Further integration of IT into teaching is an inevitable trend. Teachers' information literary should ultimately be applied to teaching; hence the training of teachers should aim to improve the ability of teachers to integrate IT into their teaching. The current situation showed that the survey Chinese teachers saw IT as unimportant and tend to neglect them, as they are not included in the National College Entrance Examination. Even when IT was employed in class, it was because these courses were open for public observation. These factors hampered the integration of IT and the teaching of Chinese, and we believe a new education concept should be established to overcome this situation. In addition, the traditional teacher-centered training courses should be replaced with self-learning by the Chinese teachers. For example, during the training period, schools' administrative departments can make training plans tailored to individual teachers and require them to be able to search and retrieve the information as required in the training plans. For another example, the trainers could assign assignments of various difficulties to teachers and require

them to design their own classes by using various software packages [7], and then to share their outcomes with other teachers. Eventually they could improve their works by the direct guidance of professional trainers and evaluation by peers. In this way, Chinese teachers in primary and secondary schools could effectively integrate information technologies into their teaching by themselves.

REFERENCES

[1] Ministry of Education of People's Republic of China, *Chinese Curriculum Standard of Full-Time Compulsory Education*, Beijing: Beijing Normal University Press, 2001, p. 3.

[2] P. S. Breivik and J. A. Senn, *Information Literacy: Educating Children for the 21st Century*, Washington, DC: National Education Association, 1998.

[3] Z.-J. Sang, "Current status and strategy of information literacy of Chinese teachers in primary and secondary schools," *Journal of Guangdong Education Institute*, vol. 25, no. 2, p. 106, March 2005.

[4] J.-Q. Wang, *Study of Information Literacy*, Shanghai: Shanghai Educational Publishing House, 1998, pp. 47-48.

[5] Q. Zhang, "Building and thinking on the training in teachers' informational technology," *Distance Education in China*, vol. 24, no. 7, p. 62, April 2004.

[6] Z. Ercegovac, *Information Literacy: Search Strategies, Tools & Resources for High School Students and College Freshmen*, Columbus, OH: Linworth Books, 2008.

[7] S.-E. Shi, *Computer-Aided Education*, Beijing: Beijing Normal University Press, 1993, p. 194.

Bing Wang was born on January 28, 1979, China. He received his bachelor of arts degree from Anhui Normal University, China in 2002; the master of arts degree from Shenyang Normal University, China in 2005; and the doctor of literature from Beijing Language and Culture University, China in 2009. He has been working as assistant professor of Chinese literature education at National Institute of Education, Nanyang Technological University, since 2010. His research interests are in the field of Chinese literature and literary education.

Xiang-Hao Liu was born on October 1, 1975, China. He received his bachelor of arts degree from Shanxi University, China in 2000; the master of education degree from Shenyang Normal University, China in 2005; and the doctor of education from Southwest University, China in 2013. He has been working as lecturer of Chinese education at the Chinese People's Armed Police Forces Academy since 2005. His research interests include Chinese education and ethnic education.