Exploration of the Application of Flipped Classroom Teaching Model in the Teaching of Chinese Writing for Overseas Students in the Age of Big Data

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ABSTRACT

Big data has brought great changes to people's way of thinking and learning, which also created new ideas for the reform of the classroom teaching model of Chinese writing for overseas students. This paper took the relevant subjects in China National Knowledge Infrastructure (CNKI) as the research object, adopted the Statistical Analysis Toolkit for Informetrics (SATI) to generate the high-frequency keywords, and sorts out the research hotspots of big data in the teaching field. The research results of this paper have shown that the new teaching models, such as Massive Open Online Courses (MOOC) and flipped classroom, had become the focus of research in the teaching field at the age of big data. In view of this, this paper, based on the background of the age of big data, starting from the problems existing in the teaching of Chinese writing for foreign students, explored the application of blended teaching model with flipped classroom in the teaching of Chinese writing for overseas students.

Keywords: age of big data, flipped classroom, overseas students, teaching of Chinese writing

1. INTRODUCTION

The rapid expansion of emerging technologies, such as cloud computing, big data, and artificial intelligence, has brought far-reaching changes to the field of education. With the development of Internet technologies, the learners can quickly and conveniently acquire a large amount of knowledge. Also, with the emergence of numerous new educational models and teaching methods, including MOOCs, Microlecture, online teaching platforms, etc., plenty of high-quality educational resources are becoming more and more rich. Undoubtedly, this has brought great challenges to the traditional "teacher-centered" classroom teaching model. Especially during the outbreak of COVID-19, the cross-border and cross-regional online teaching was carried out in full swing. Through this large-scale education practice, people have accumulated massive amounts of online teaching data, which has provided us with data to support our Chinese teaching research with the help of big data.

"Among the four skills of listening, speaking, reading and writing, writing is considered to be the most difficult one. In the Hanyu Shuiping Kaoshi (HSK), writing only appears in the advanced level of the test in general." [1][P: 242] In recent years, many research achievements made in Chinese teaching mainly focus on listening, speaking and reading. The research progress of the writing teaching has been relatively slow, and from the theoretical research to the practical exploration, the attention has been insufficient. Combining the background of the age of big data closely, this paper explored the teaching of Chinese writing for overseas students. It started from the problems existing in the teaching of Chinese writing for overseas students, to discuss how to carry out better teaching of Chinese writing based on Big Data Analysis in the post-epidemic era, that is, adopting the blended teaching model with flipped classroom.

2. ANALYSIS OF BIG DATA RESEARCH IN THE FIELD OF EDUCATION

This paper, taking the "source journal =CSSCI" as the screening conditions, conducted advanced search on CNKI, set the search duration to 2010-2020, delated irrelevant contents (such as conference summaries, interviews), and finally obtained 457 valid academic journals and literature. Then, it exported the informetrics of the literature to the EndNote format, and imported them into SATI. At last, it carried out high-frequency keyword analysis of the literature, and located a total of 2030 keywords. Next, it combined the similar keywords (for example, referring both the Massive Open Online Courses and MOOC as "MOOC", referring both education reform and educational reform as "educational reform"), identified 15 keywords with a frequency of no less than 10 as high-frequency keywords, which can effectively reflect the focus of big data research in the field of education (as shown in Table 1).

Table 1 High-frequency Keyword of "Subject = Big Data * Teaching" and Its Frequency

S/N	Keywords	Frequency	S/N	Keywords	Frequency
1	Big data	198	9	Educational Informationization	15
2	Age of Big Data	41	10	Smart Education	15
3	Education Big Data	30	11	Teaching Model	14
4	Internet	21	12	Data Literacy	12
5	Learning Analysis	20	13	Precision Teaching	12
6	MOOC	17	14	Flipped Classroom	11
7	Artificial Intelligence	15	15	Talent Cultivation	10
8	Teaching Reform	15			

From the above table, in addition to the subject search term of "big data", the keywords of new teaching models, such as MOOC and flipped classroom, rank among the top 15 high-frequency keywords in the teaching field, which, to a certain extent, reflects the focus of research in the field of "Big Data + Teaching". Combined with this analysis, based on the background of the age of big data, this paper explored the application of the flipped classroom model in the teaching of Chinese writing for overseas students, hoping to provide more pertinent suggestions for the reform of the teaching model of Chinese writing for overseas students.

3. PROBLEMS EXISTING IN THE TEACHING OF CHINESE WRITING FOR OVERSEAS STUDENTS

Writing is a communicative approach by which the information in conveyed in written form. Through screening, filtering and modifying people's experience, it stored all the conveyed information properly. Therefore, it is a meaningful communication activity. [2][P: 243] The Chinese writing ability of overseas students is not only a part of writing ability, but also an essential part of Chinese language ability. According to Qinghong PU (2010), in teaching Chinese as a foreign language, the improvement of writing ability is not only the most difficult part for overseas students, but also the weak link in their Chinese learning. [3] If the reasons are discussed, in the teaching of Chinese writing for overseas students, there are the shackles of backward educational concept, single teaching model and narrow teaching methods, which lead to the unsatisfactory teaching effect of Chinese writing for overseas students.

3.1. Backward Educational Concepts and Lack of Individualized Teaching

The basic requirements of China's new curriculum reform are teaching students in accordance with their aptitude and individualized teaching, which are also the educational concept strongly advocated in teaching Chinese as a foreign language. However, the implementation of this educational concept in the teaching of Chinese writing is obviously lagging behind. For the overseas students from different nations, regions, nationalities and cultures, before coming to China, their Chinese writing levels are uneven, the reason is the imbalance of their Chinese education levels and the students' individual differences. In China, the Chinese language teaching usually adopts the traditional classroom teaching model which usually has a quite large class, making it difficult to cater for all tastes. Moreover, the teaching of Chinese writing in China complies with the relevant regulations in teaching progress and teaching contents, in which the writing class periods are tight and the teachers are bound to complete the teaching plan step by step, and cannot carry out the individualized teaching. In the "Large-class Lecture", teachers usually assign the writing tasks to the whole class, and students only need to complete several tasks each semester. In this case, teachers cannot assign individualized tasks according to students' language level, writing level and individual characteristics. Moreover, because teachers have to teach multiple classes and are busy in correcting homework, they cannot give timely and effective feedback, let alone provide one-to-one guidance to students on individual issues.

3.2. Single Teaching Model and Lack of Interest in Writing

"Language teaching has a certain degree of particularity. Compared with theoretical and knowledge classes, the language teaching requires stronger interaction. In the environment of classroom teaching, teacher-student interaction and student-student interaction are essential links." [4] As for teachers, the common teaching model adopted in language teaching by teachers is analyzing model essays - doing exercises - imitating writing. In this model, the contents in class are mechanical and boring, and the model essays used are not closely related to life, or even out of step with the times, which greatly reduces the interest of the Chinese writing class; In addition, the lack of rich teaching activities and the unreasonable design results in lack of teacher-student interaction. Students only listen from the beginning to the end, so it is difficult to arouse their interest in learning. As for students, students with a low Chinese level and weak foundation have a strong dependence on teachers and model essays. When encountering difficulties in writing, these students often have fear of difficulties, coupled with improper learning methods, limited vocabulary, unclear learning objectives and that Chinese writing itself is more difficult and other reasons, leading to their lack of confidence in learning and decline in learning interest even more.

3.3. Narrow Teaching Methods and Lack of Effective Evaluation

"Right now, the classroom teaching is still the foundation and focus of teaching Chinese writing as a foreign language, nevertheless, many new teaching resources, such as various online resources and online classes have not been fully introduced into the teaching of Chinese writing as a foreign language." (Qiuhang ZHANG, 2018) [5] In the teaching of English writing as a second language, in which the teacher is still the main body in writing correction and evaluation, the new teaching methods, such as the online correction platform for English writing - the online automatic composition scoring system correction network (www.pigai, org) and transoceanic interaction,

has been used. Compared with that, no similar method has been used for Chinese writing teaching [6]. In addition, in the traditional class, teachers use the traditional paper textbooks, blackboard and multimedia courseware to teach writing knowledge and strategies in the ordinary classrooms, and the students consolidate what they have learned in class by taking notes and writing exercises. The students are required to complete their homework independently without the help of external tools and then submit them in paper version. This requirement consumes a lot of working procedures, time and energy. In the writing process, students' writing process is often interrupted or they even give up writing because they forget how to write a certain Chinese character, which seriously affects the progress of Chinese writing teaching.

4. BLENDED TEACHING MODEL WITH FLIPPED CLASSROOM BASED ON BIG DATA

From the perspective of psychological principles, the process of writing is the process of processing information. The famous American educational psychologist in the 20th century, Mr. Gagne, proposed the information processing model of learning. He believed that learning is the result of the interaction between students and the environment. Based on his theory, Mr. Gagne divided the learning process into eight stages, namely, motivation stage (expectation), comprehension stage (coding: selective perception), learning stage (coding: storage registration), retention stage (memory storage), recall stage (extraction), generalization stage (migration), homework stage (reaction) and feedback stage (intensification) [7]. In traditional classroom teaching, it is necessary to complete the above eight teaching stages step by step, but due to the limitation of teaching time, it is difficult to achieve the expected teaching effect. In the flipped classroom teaching, it is necessary to combine the face-to-face teaching and online teaching, and make their respective advantages complementary to each other, in order to obtain better teaching and learning effects. The flipped classroom teaching model is shown in table 2 [8].

Table 2 Flipped Classroom Teaching Model

	Teacher	Student
Pre-class	Task Announcement	Watch teaching resources, do self-study and summarize questions
	Pre-class guidance	
In class	Teacher's comments trigger discussion	Group report
	Supplementary explanation	Teacher-student and student-student communication

| Post-class | Q&A and assign homework | Raise questions and knowledge internalization |
| | Communication and feedback | Practice after class and teacher's guidance |

In the age of big data, the channels for acquiring knowledge are becoming more and more diverse, and learning is no longer limited by time and space conditions. Open and abundant educational resources have further liberated people's way of learning, and enlighten teachers to change their educational concepts, change the traditional classroom teaching models, use a variety of teaching methods, and carry out the "student-centered" flipped classroom teaching model, thus to effectively assist the completion of the above nine teaching stages. In the following text, we will discuss the application of flipped classroom in the teaching of Chinese writing for overseas students in the age of big data from three aspects.

4.1. Before the Classroom Teaching of Chinese Writing

As mentioned earlier, we have mentioned that the teaching of Chinese writing for overseas students has problems such as backward educational concepts and lack of individualized teaching, as well as the characteristics such as uneven Chinese level, individual differences, and large traditional classrooms, making it difficult to cater for all tastes. With the help of Big Data Analysis, teachers collect and sort out the common and typical errors of students, and establish the personal language database for learners. The language database shall include the high-frequency vocabulary, high-frequency sentence patterns and high-frequency topics for Chinese writing of overseas students, transformation between spoken and written language, and relevant cultural topics. Based on the language database, teachers design and publish the microlecture videos, PPT, images & files, audio introductions and other teaching resources of corresponding knowledge points. Students do self-study, get familiar with the writing background, perform online communicate and learn, complete the learning task lists and raise questions according to their personal level. Thus, the individual demand of students can be effectively met, the individual differences can also be focused on, and teachers can also "teach students in accordance with their aptitude".

For those learners who have a weak foundation and have a strong dependence on teachers and model essays, in the link of example presentation, with the help of the multimedia, teachers can mobilize the learners' various sensory stimuli, and present the written expression form and language use scenarios which students consider complex, as well as the abstract concepts which are difficult to teach and practice, for the purpose of enabling the learners to establish connections between knowledge,

reduce the cognitive load, and quickly and intuitively understand the learning contents.

4.2. During the Classroom Teaching of Chinese Writing

"In the four major links of teaching activities, classroom teaching is the central link." [9][P: 340] In the traditional teaching of Chinese writing, there are some problems, such as the contents are boring, the model essays are not closely related to life, the teaching activities are not rich, and the design is unreasonable, which lead to the lack of interest in writing. The classroom teaching under the flipped classroom teaching model will subvert the traditional teaching process (new class introduction - explanation - summary - homework assignment). Through ingenious classroom design, teacher will actively guide and encourage students to express their personalized opinions, to let students feel free to express their views fully, and let teacher-student interaction and student-student interaction become normal in the classroom. Under the teaching principle of "only teaching the essential and doing plenty of practice", teachers adopt the task-driven teaching method, group cooperative learning method, and exploring-learning method, etc., to give full play to students' subjectivity and solve individual problems, for example, self-test pronunciation and correct each other's mistakes in a group. Limited by teaching time, for some individual problems that cannot be solved in class, after class, teachers can use WeChat, Weibo, QQ and other online communication platforms to provide targeted guidance, thus to realize the one-to-one instruction.

After the group discussions or problem exploration, students of different levels may have deviations in the degree of knowledge internalization. For this problem, teachers can analyze students' learning data, adopt the hierarchical teaching method, assign typical tasks to students with different ability levels, encourage students to work together through group cooperation, and finally exchange their study results.

4.3. After the Classroom Teaching of Chinese Writing

The teaching evaluation is critical to both teachers and students, and is an important means to ensure teaching efficiency and effectiveness. Through the evaluation, students can express their opinions and requirements;

Through the evaluation, teachers can draw lessons from the past, especially improving their teaching through students' feedback. [10][P: 354] However, Xinchun LIU (2014) believed that "the overseas students' feedback is not reliable in many cases and to a great degree, especially in classes with students with a low Chinese proficiency." [11] Through the entire teaching process, especially in the Chinese writing teaching class, with the consent of the students, recording their real experience in the whole process from getting involved in writing to completing their writing tasks, and using big data analysis, can quantify the student's experience from the technical perspective, and then combined with the traditional evaluation means to perform formative evaluation of the students, it will be more conducive to improving the students' Chinese writing. For teachers, the data analysis can help teachers to observe the daily performance of students from a more microscopic perspective, based on which, the teachers can re-examine their teaching, and timely adjust their teaching methods, thus to ensure the effectiveness.

5. CONCLUSION

The application of big data technology in teaching of Chinese writing has just started. Problems exist in data collection and sorting, effective data mining, screening and analysis, and privacy protection of learners. Therefore, the application needs to be handled carefully. Moreover, although the teaching model of flipped classroom has been practiced in Chinese teaching, it is not implemented in a wide range, but only participates in the teaching practice of some schools and teachers. In the Chinese writing teaching, its application is even more limited. The implementation of "flipped classroom" requires teachers to prepare teaching videos and other relevant teaching resources in advance. Due to the differences in teachers' ability and network information literacy, the selection of teaching resources has difficulty in meeting the teaching needs. Finally, to achieve the teaching goal of flipped classroom, two key points shall be emphasized: "Firstly, the in-depth learning really took place outside of class; Secondly, efficient adoption of class time to exchange learning experiences and collide the ideas of each other actually deepens students' cognition." [12] To solve these problems, we need the continuous and in-depth exploration and practice.

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