Cloud Computing Based Big Data Improves the Teaching of College Marxist Theory

Yang Yang and Zhenhong Liu[✉]

School of Marxism, Wannan Medical College, Wuhu 241002, Anhui, China
zhliu2006@wnmc.edu.cn, 13121682@bjtu.edu.cn

Abstract. Purpose: With the rapid development of science and technology, we have entered the times of Big Data. In the new era, Big Data technology should be used to optimize the methods of Marxist theoretical education, to promote the Marxist theoretical education to a new level. The application and role of the application of Big Data in the education of Marxist theory is remained unclear. **Method**: The present study integrates the Internet of Things and Cloud Computing into the big data platform through computer technology, and then relies on that Big Data platform to carry out the teaching of Marxist theory courses. **Results**: By comparing the course satisfaction and course performance of students given traditional teaching and Big Data teaching at different levels, it is found that the course performance and satisfaction of all students receiving Big Data teaching have significantly improved, and the results of correlation analysis show that the higher the proportion of big data teaching, the higher the students' course performance, the higher the satisfaction, and the lower the failure rate. **Conclusion**: The present research for first time concluded that Big Data teaching plays a significant role in improving students' curriculum satisfaction, reducing the failure rate, and improving curriculum performance through comparative research and correlation analysis.

Keywords: Big Data · Cloud computing · computer technology integration · teaching satisfaction · comparative research

1   Introduction

Big Data is a collection of data whose scale exceeds the capabilities of traditional database software tools in terms of acquisition, storage, management, and analysis [1, 2]. Big Data analysis often associated with cloud computing because real-time analysis of large data sets requires a framework like MapReduce to distribute work to tens, hundreds or even thousands of computers [3]. With the arrival of the Cloud era, Big Data technology penetrates all aspects of people's social life, it has a significant impact on people's way of life, production and thinking [4]. Big data provides a basic platform and new technology for obtaining resources for the Marxist theoretical education of college students, but its exact impact is unclear.
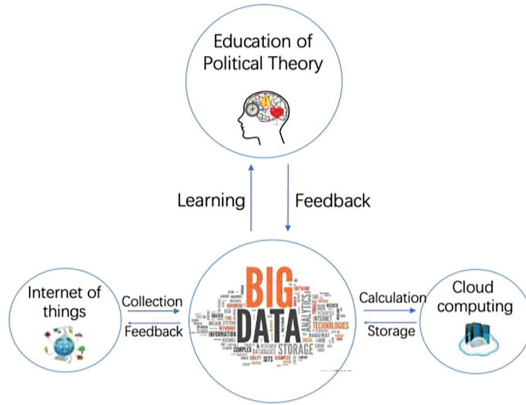
Fig. 1. Model of the big data platform (Self Drawing)

2   Teaching Process and Research Methods

The work of Marxist theoretical education should grasp the overall situation, think, plan, and carry out Marxist theoretical education from an overall, forward-looking, and strategic perspective, give full play to the enthusiasm, initiative, and creativity [4] so that the theoretical education work can profoundly demonstrate the times and the creativity, thereby enhancing the pertinence of theoretical education [5]. In the era of big data, we should make full use of the real-time and relevance of big data technology, track students' learning dynamics in real time, transform the previous one-dimensional model into a two-dimensional model and achieve effective communication between the subject and object of education. It is necessary to support the resource integration platform, improve the service quality of the basic education platform, share educational resources, and increase the two-way openness and inclusiveness of the education sharing platform.

2.1   The Application Mode of Big Data in the Education of Marxist Theory

While teaching Marxist theory, the current political hot issues closely related to classroom theory are obtained through the analysis of the big data platform which combining the Internet of Things and Cloud computing (Fig. 1), which increases the attractiveness of theoretical knowledge. With the help of a new platform built by Big Data, students can express their thoughts and feelings more directly and freely, and increase the autonomy, openness and sharing of students' course learning.

2.2   Teaching Method

In the present study, 24 classes were randomly assigned into control group, experimental group 1, 2 and 3, with 28–32 students in each class. The control group used traditional Marxist theory teaching methods. 1/4 of the courses in experimental group 1 are taught by the Marxist theory based on big data, 1/2 of the courses in experimental group 2 are taught by the Marxist theory based on big data, and all the courses in experimental
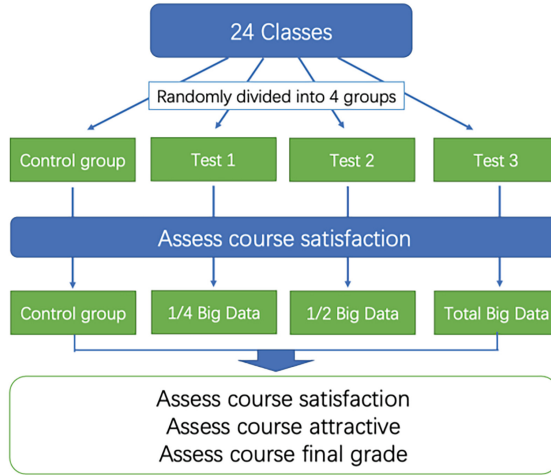
Fig. 2. Experimental grouping of Marxist theory based on Dig Data (Self Drawing)
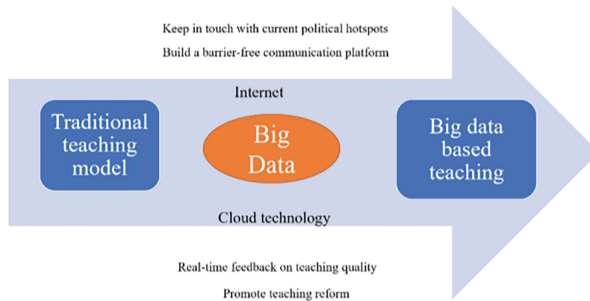

Fig. 3. Big data connects traditional teaching and Big Data teaching (Self Drawing)

group 3 are taught by the Marxist theory based on big data (Fig. 2). The experimental group firstly established a big data platform relying on Cloud technology and internet (Fig. 3). During the teaching process, the course progress of the experimental group and the control group was maintained, and the main content of the course was consistent.

2.3   Teaching Evaluation

The evaluation of teaching effect includes three parts: the attractiveness of Marxist theory education, course satisfaction and student achievement. Among them, attractiveness and course satisfaction are collected through questionnaires. Students' course grades mainly include final exam grades and usual grades, which usually include classroom attendance grades, usual performance grades, and homework grades. The final course grade of students is final grade * 40% + usual grade * 30% + comprehensive practice ability score * 30.

Table 1. The influence of Big Data teaching on the attractiveness (Self Drawing)

	Control	1/4 Big Data	1/2 Big Data	Total Big Data
Very Attractive	32%	38%	42%	51%
Attractive	33%	35%	38%	42%
Weak Attractive	35%	27%	20%	7%

2.4 Result Processing

The analysis of the experimental results was carried out by GraphPad Prism 9.0, the scores between the two groups were tested by T test, and the comparison among multiple groups was by one-way analysis of variance, and $P < 0.05$ was considered to have significant difference.

3 Result

3.1 The Influence of Big Data Teaching on the Attractiveness of Marxist Theoretical Education

According to the results of the questionnaire before and after the big data experimental course education was carried out, the satisfaction of the class group that carried out the big data method teaching on the course was significantly improved, and the comparison between the classes that adopted the big data teaching of different lengths of time The results show that the attractiveness of the course is directly proportional to the length of time that the big data-based approach is adopted in teaching (Table 1).

3.2 The Influence of Big Data Teaching on the Satisfaction of Marxist Theory Education Curriculum

Based on the problem that the course satisfaction of Marxist theory course education is generally not high, we quantitatively compared the course satisfaction of big data teaching. Classes in the traditional teaching mode had lower course satisfaction after the course (61.2%) than before the course (63.5%). Big data-based teaching can improve course satisfaction in a time-dependent manner after the course ends, significantly improving course satisfaction. The course satisfaction of the classes using big data-based teaching throughout the semester has been as high as 87.4% (Fig. 4).

3.3 The Influence of Big Data Teaching on Students' Performance in Marxist Theory Education Courses

The final effect of a course teaching is finally reflected in the students' course grades, so grades are an indicator that we must examine. As expected, the big data-based teaching also significantly improved the students' performance in this course and showed the dependence of the Big Data-based teaching time (Fig. 5).
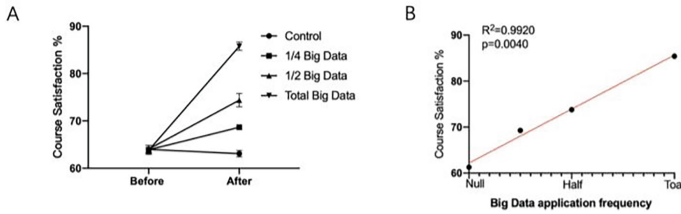
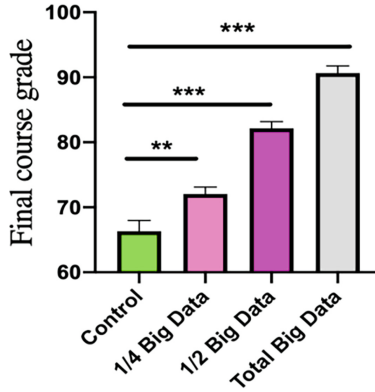**Fig. 4.** The influence of Big Data teaching on the satisfaction (Self Drawing)

Fig. 5. The influence of Big Data teaching on students' performance (Self Drawing)

4 Discussion

In the era of big data, college students can express their thoughts and feelings more directly and freely with the help of big data technology [6]. Compared with the traditional Marxist theory education process, college students mainly receive education through classrooms, club activities and other forms. The theoretical education of college students in Times is more autonomous, open, and shared [7]. Teachers can also use the network to communicate and communicate with students in real time [8], which provides a bridge for the further development of the teacher-student relationship. Teachers can also use the big data platform to get rid of the lag and one-sided constraints in traditional education, and grasp the ideas related to students in time [9]. Dynamic data, with the help of data analysis, grasp the actual situation of students, and provide guidance for the formation and development of students' values.

On the other hand, in the era of big data, it is necessary to prevent ideological penetration and strengthen the theoretical education of Marxism, especially the theoretical education of college students [10]. We must grasp the essential characteristics of big data technology, analyze the connotation of Marxist philosophy of technology in the era of big data, sort out the theoretical basis of Marxist theoretical education for college students in the era of big data, and analyze the opportunities faced by Marxist theoretical education for college students in the era of big data and challenges, deeply explore the convergence point between big data and Marxist theoretical education, promote the

deep integration of big data and theoretical education, and explore the innovative path of Marxist theoretical education for college students in the era of big data, so as to enhance the effectiveness of Marxist theoretical education.

5   Conclusion

The present study for the first time makes a comprehensive comparison between Big Data teaching and traditional teaching mode and distinguishes big data teaching of different durations. The study clearly demonstrate that Big Data-based teaching can significantly improve the course attractiveness, course satisfaction and student test scores. Therefore, the use of Big Data teaching in the teaching of Marxist theory courses is effective and worthy of promotion.

Conflicts of Interest.   The authors declare that they have no conflicts of interest.

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