

## *Retraction*

# **Retracted: Evaluation Algorithm of Ideological and Political Assistant Teaching Effect in Colleges and Universities under Network Information Dissemination**

### **Scientific Programming**

Received 8 August 2023; Accepted 8 August 2023; Published 9 August 2023

Copyright © 2023 Scientific Programming. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their

agreement or disagreement to this retraction. We have kept a record of any response received.

### **References**

- [1] S. Hu and J. Wang, "Evaluation Algorithm of Ideological and Political Assistant Teaching Effect in Colleges and Universities under Network Information Dissemination," *Scientific Programming*, vol. 2022, Article ID 3589456, 7 pages, 2022.

## Research Article

# Evaluation Algorithm of Ideological and Political Assistant Teaching Effect in Colleges and Universities under Network Information Dissemination

Siyuan Hu  and Jingsheng Wang

Cangzhou Normal University, Cangzhou, Hebei 061001, China

Correspondence should be addressed to Siyuan Hu; [husiyuan@st.btbu.edu.cn](mailto:husiyuan@st.btbu.edu.cn)

Received 15 October 2021; Revised 30 November 2021; Accepted 21 December 2021; Published 4 January 2022

Academic Editor: Jamil Hussain

Copyright © 2022 Siyuan Hu and Jingsheng Wang. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Ideological and political course is a key course to implement the fundamental task of building morality and cultivating people. Teaching evaluation is an important part of the construction of ideological and political courses. Constructing a perfect teaching evaluation index system is an urgent need to further deepen the teaching reform of ideological and political courses and improve the teaching quality of ideological and political courses. In order to improve the practical application effect of mixed teaching mode, an online and offline mixed teaching effect evaluation method based on big data analysis is proposed. Firstly, the big data in the process of mixed teaching are collected by using big data technology, and the evaluation index system is constructed from three dimensions. The required data are extracted according to the index, and then the association rules between the relevant data of the evaluation index are established, the phase space distribution of the data is obtained. Finally, the constraint parameter analysis method is used to fuse the control variables and explanatory variables of the index-related data to realize the online and offline mixed teaching effect evaluation. The application analysis results show that the method in this paper obtains ideal evaluation results of online and offline mixed teaching effects, which is conducive to improving teaching quality.

## 1. Introduction

Education is a great plan of the country, bearing the fundamental task of establishing moral education. Civics course is the key course to implement the fundamental task of establishing moral education and plays an irreplaceable role. Since the 18<sup>th</sup> Party Congress, the party central committee, with Comrade Xi Jinping as the core, has put the ideological and political works of colleges and universities in a prominent position and made a series of major decisions and plans. The relevant departments of the state have comprehensively promoted the teaching reform and practice of the civic science course and have formulated and issued a series of policy documents to further emphasize the importance of improving the quality of the civic science course.

The improvement of the quality of civics class is a systematic project, and a sound and perfect teaching evaluation index system is an important content and effective

means to improve the teaching quality of civics class. The existing index system of teaching evaluation of civics and political science class in colleges and universities is still imperfect and unscientific, which restricts the improvement of teaching quality of civics and political science classes in colleges and universities. In this paper, we start from the value orientation of the construction of the teaching evaluation index system of civics and political science class in colleges and universities. We comprehensively analyze the main problems in the teaching evaluation of civics and political science classes in colleges and universities and explore the principles and basic framework of the construction of the teaching evaluation index system of civics and political science course. We try to play a role in promoting the teaching of civics and political science classes.

Ideological and political education is a fundamental education. Since the 18<sup>th</sup> Party Congress, General Secretary Xi Jinping has made a series of important remarks on the

ideological and political work of colleges and universities, especially on the construction of civic and political science course, standing at the strategic height of the long-term development of the party and the national cause, which profoundly clarified the importance of ideological and political education. Focusing on the implementation of the spirit of General Secretary Xi Jinping's important speeches and decision-making plans, the CPC central committee and the state council issued the opinions on strengthening and improving the ideological and political works in colleges and universities under the new situation in 2016, which clearly put forward that "we should improve the evaluation system of ideological and political work in colleges and universities, study and formulate an evaluation system with comprehensive contents, reasonable indicators, and scientific methods, and promote the institutionalization of ideological and political work in colleges and universities" [1]. Since then, the ministry of education has formulated and issued the basic requirements for teaching ideological and political theory classes in universities in the new era. They propose to establish and improve the multiple evaluation mechanism and make a comprehensive evaluation of the teaching quality of ideological and political courses [2]. The opinions on deepening the reform and innovation of ideological and political theory classes in schools in the new era issued by the general office of the CPC central committee and the general office of the state council clearly points out that the construction of ideological and political courses should be incorporated into the evaluation system of the school. The "implementation plan for the reform and innovation of ideological and political theory classes in schools in the new era" jointly issued by the propaganda department of the CPC central committee and the ministry of education also emphasizes the need to focus on diverse evaluation methods in teaching civics and political science classes [3]. The teaching evaluation of civics and political science course is an important part of the overall evaluation system of ideological and political work in colleges and universities. The above policies formulated by the state and relevant departments all put forward specific requirements for the construction of teaching evaluation index system of civics and political science courses in colleges and universities from different perspectives, thus it can be seen that improving the teaching evaluation index system of civics and political science courses are the appropriate action to implement the relevant national policies.

The teaching evaluation index system, as an important means to test the effects of practical teaching in civics and political science classes, includes three aspects. First, it can further standardize the practical teaching in civics and political science classes by determining the evaluation objectives and standards of practical teaching, reducing the blindness of practical teaching activities, solving a certain extent of the problem of unclear objectives of practical education in civics and political science classes, improving the effectiveness of practical teaching activities, and realizing the civics and political science education differentiation. The second is that by setting up a targeted evaluation, that is by setting up the targeted evaluation contents and indicators,

can promote the reform and innovation of practical teaching in civics and political science classes, help civics and political science teachers reflect on and improve the specific contents of practical teaching in civics and political science classes with target-oriented, and solve the problems of low student participation in civics and political science classes at the present stage. At the same time, through targeted evaluation, students are guided to focus on traditional theoretical learning while participating more actively in social practice, objectively and fairly evaluate students' actual performance, and improve the quality of teaching in civics and political science classes. Third, the teaching evaluation system can objectively and impartially measure and verify the practical teaching performance of college teachers of civics and political science courses and the quality of practical teaching in schools [4], and guarantee students' practical learning to achieve results. A fair and reasonable evaluation can positively enhance the sense of honor, belonging, and responsibility of all subjects in the civics and political science class, maximize the initiative and creativity of teachers and students and enhance the effectiveness of civics and political science class education.

Under this model, face-to-face traditional classroom teaching will be combined with an online network teaching platform [2], organically combining different teaching elements such as teachers, students, and environmental tools, and complementing the advantages of online and offline teaching through scientific and effective teaching methods [5], so as to achieve the maximum teaching effect.

However, in the practical application of hybrid teaching, combining online teaching with offline teaching to improve the teaching effect is the focus of research on hybrid teaching, and the evaluation of the effect of online and offline hybrid teaching can provide an important reference [3].

The currently commonly used assessment methods based on learning inputs [4] and web-based data [6] are susceptible to interference from the external environment in the process of practical application, resulting in less accurate and less efficient assessment results. To solve such problems, we study the evaluation method of online and offline hybrid teaching effect based on big data analysis, realize the scientific evaluation of online and offline hybrid teaching effect, and optimize the hybrid teaching model based on the evaluation results to improve the hybrid teaching effect.

## 2. Related Work

Education is the most important tool for not only scientific development but also for character building, bearing the fundamental task of establishing moral education. Data analysis tools and data analysis has widely been used in various domains to get insights and useful knowledge. It has also been widely used in the education sector. In this section, we are going to critically analyze some of the previous work done in this particular area.

Bernhardt, [7] states that data and data analysis have a great role in identifying the problems in school education. They describe the process to effectively collect data and give a detailed analysis of how data has an impact on the performance of

a teaching-learning environment. Villegas-Ch et al. [8] analyze how the COVID-19 pandemic has changed the teaching-learning environment and propose the integration of artificial intelligence and data analysis with the learning management systems to improve the teaching-learning process. Ciolacu et al. [9] state that online education has been playing a very important role in the betterment of the teaching-learning environment and has enabled us to effectively collect data and perform data analysis and apply machine learning algorithms for the betterment of the teaching-learning environment. Their analysis is based on neural networks, SVM, decision tree, and cluster analysis to predict the students' performance. Purwoningih et al. [10] believe that it is important to detect students' behavior in interacting with the learning management system to personalize the learning and this could be achieved by obtaining the patterns in the teaching-learning process. They use the students' behavior data, exploratory data analysis, and machine learning to detect the students' behavior in e-learning.

Constructing a perfect teaching evaluation index system is an urgent need to further deepen the teaching reform of ideological and political courses and improve the teaching quality of ideological and political courses. In order to improve the practical application effect of mixed teaching mode, an online and offline mixed teaching effect evaluation method based on big data analysis is proposed. The currently commonly used assessment methods based on learning inputs [4] and web-based data [6] are susceptible to interference from the external environment in the process of practical application, resulting in less accurate and less efficient assessment results. To solve such problems, we study the evaluation method of online and offline hybrid teaching effect based on big data analysis, realize the scientific evaluation of online and offline hybrid teaching effect, and optimize the hybrid teaching model based on the evaluation results to improve the hybrid teaching effect.

### 3. A Hybrid Online and Offline Teaching Effectiveness Evaluation Method

Figure 1 shows the online and offline hybrid teaching model. The online and offline hybrid teaching process includes four main components, they are teaching prep, actual teaching, teaching report, and teaching assessment.

- (1) In the pre-study session, the teacher guides students to do online pre-study by setting pre-study questions online, and the students have to give correct answers to the pre-study questions within the set time limit. Students are required to give correct answers to the pre-study questions within a set time limit. The actual teaching session will be conducted only when the percentage of correct answers to the pre-study questions reaches 85% or more.
- (2) Before the actual teaching (offline teaching), the students from different groups are required to verbally describe the main learning contents to each other, in order to practice and examine the students' understanding of the teaching contents and their verbal skills. In the actual teaching process, the

students' practical learning ability is mainly assessed. Some of the learning contents require cooperation between two or more people, and this part mainly examines students' teamwork ability.

- (3) The teaching report session mainly examines the students' written expression ability and logical thinking ability in a mixed way of online and offline. Students should pay attention to the format of the report when submitting the report, and the main content of the report is the problems they encountered in the actual learning process and the insights they gained after learning.
- (4) The teaching assessment session mainly assesses the mastery and application level of students' learned knowledge through a mixture of online and offline methods [11]. The teaching assessment session is divided into two main parts, one is the online defense assessment for students and the other is the offline practical assessment for students. For some of the students who failed to pass the assessment successfully, they need to conduct the teaching pre-test again, so they are connected with dashed lines within Figure 1.

*3.1. Assessment Index System Construction.* For the four main components of the online and offline hybrid teaching model, the evaluation index system of online and offline hybrid teaching effectiveness was constructed from three dimensions: before, during, and after teaching. The selection of evaluation indexes is complicated, so the initial evaluation index system is firstly constructed by using questionnaire research and multiple rounds of expert interviews [12]; on this basis, the Delphi method is used to optimize the initial indexes; finally, the weight of each evaluation index is determined by using hierarchical analysis, and the online and offline hybrid teaching effectiveness evaluation index system is constructed as shown in Figure 2.

The preteaching dimension includes four assessment indexes and nine specific assessment contents of engagement, participation, learning ability, and guided assessment; the in-teaching dimension includes four assessment indexes and twelve specific assessment contents of engagement, participation, learning ability, and contribution; the post-teaching dimension includes three assessment indexes and four specific assessment contents of knowledge transfer, realtime assessment, and ability improvement. From the assessment index system, we can find that the online and offline hybrid teaching assessment is carried out by combining the online and offline assessment, qualitative and quantitative [13] while considering the state monitoring and evaluation of the whole teaching process.

*3.2. Teaching Effectiveness Evaluation Based on Big Data Analysis.* In this section and its sub-sections, details about the concept of big data fusion and big data evaluation are given. Mathematical models of both concepts are provided for a better understanding of the readers.

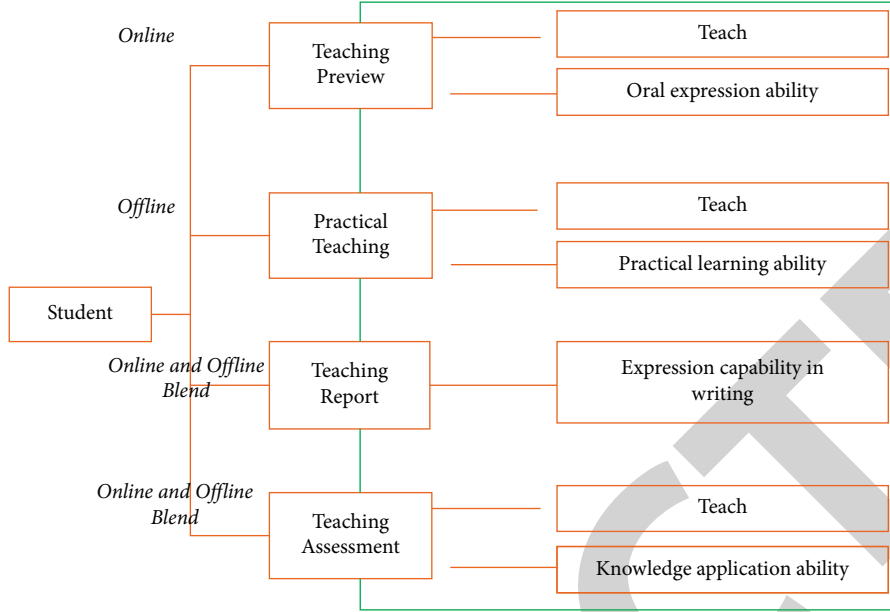


FIGURE 1: Online and offline hybrid teaching model.

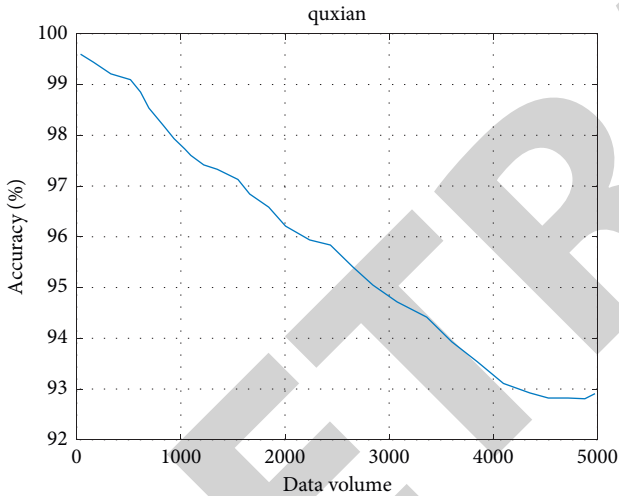


FIGURE 2: Accuracy of association rule feature extraction.

**3.2.1. Big Data Fusion.** The association rule feature extraction method is used to extract the association rules within the data related to assessment indexes [14] and based on this, the big data phase-space distribution  $W$  of online and offline hybrid teaching effect assessment is constructed, which can be understood as an  $n \times m$  control matrix of teaching effect assessment. With  $\rho q$  and  $P(n_i) = \{\rho_k | \rho_{k_j} = 1, k = 1, 2\}$  representing the feature distribution vector and probability distribution function, respectively, the fusion analysis of big data related to online and offline hybrid teaching effectiveness evaluation indexes is realized. The regression analysis method is used to analyze the association rule characteristic data of the big data related to assessment indexes [15], and the regression analysis model of the big data related to assessment indexes is obtained, and the formula is described as follows:

$$x(t) = \sum_{i=0}^{\rho} a(\theta_i) s_i(t) + n(t), \quad (1)$$

where  $\rho$  and  $n(t)$  denote the number of probability distributions and interference terms of hybrid teaching effectiveness assessment indexes, respectively. The fuzzy affiliation function for the identification of big data related to the effective assessment index is constructed, and the formula is described as follows:

$$R_s^{(0)} = \sum_{n=0}^k \langle R_s^{(n)}, d_{\gamma n} \rangle d_{\gamma n} + R_s^{(k+1)}, \quad (2)$$

where  $R_s^{(n)}$ ,  $d_{\gamma n}$  and  $R_s^{(k+1)}$  denote the characteristic amount of large data distribution related to the assessment index, the number of data reconstruction bits, and the iteration coefficient of hybrid teaching effectiveness assessment, respectively.

Based on the above analysis to determine the fusible decomposition of the big data related to the assessment index:

$$G(t) = \min\{G_1(t) + G_2(t)\} \\ = \min\left\{ \left[ - \int F_{\mu}(t) \times \text{sign}(k_{\mu}(t)) \right] + w \left[ \int |\Delta T_m(t)|_{K_{\mu} \in \Theta} \right] \right\}, \quad (3)$$

where  $k_{\mu}(t)$  and  $w$  denote the sampling scale and relative weight of the big data related to the evaluation metrics at time  $t$ , respectively,  $\Delta T_m(t)$  and  $\Theta$  denote the quantitative feature set of the big data related to the evaluation metrics at time  $t$  and  $k_{\mu}(t)$  the adaptive probability condition, respectively.

The fusion of big data related to hybrid teaching effectiveness evaluation indicators can be achieved by using equation (3).

**3.2.2. Big Data Evaluation.** After completing the fusion of big data related to effect assessment indexes, the constrained covariance analysis method is selected to analyze the control variables and explanatory covariates of the big data [16], thus realizing the online and offline hybrid teaching effect assessment,  $\delta$  is the implicit state in the assessment process,  $\eta$  is the observed state in the assessment process, thus determining the fuzzy convergence control function of big data related to assessment indexes, and the formula is described as follows:

$$M_v = w_1 \sum_{i=1}^{m \times n} (H_i - S_i) + M_h w_2 \sum_{i=1}^{m \times n} (S_i - V_i) + w_3 \sum_{i=1}^{m \times n} (V_i - H_i), \quad (4)$$

where  $M_h$  denotes the assessment metric-related big data transmission load. The joint association rule mining method is selected to obtain a finite dataset of assessment metrics-related big data, and the formula is described as follows:

$$J = \{j_1, j_2, \dots, j_n\} \subset R^s, \quad (5)$$

where  $n$  samples are included in the set of large data related to the assessment metrics.

Sample  $j_i, i = 1, 2, \dots, n$ , combined with the support vector machine learning adaptive classification learning method to determine the quantitative feature relationships for the evaluation of hybrid teaching effectiveness, the formula is described as follows:

$$h(t) = \sum_i a_i(t) e^{j\theta_i(t)} \delta(t - iT_s). \quad (6)$$

The optimized support vector machine learning model was selected for the assessment of the effectiveness of hybrid teaching and learning classification, and the detailed assessment results were obtained based on the statistically average household information method, and the objective function of the effectiveness assessment was as follows:

$$\begin{aligned} & \text{minimize } \frac{1}{2} \|w\|^2 + C \sum_{i=1}^n (\xi_i + \xi_i^*) \\ & \text{subject to } y_i - (w\Phi(x_i) + b) \leq \varepsilon - \xi_i, (w\Phi(x_i) + b) - y_i \leq \varepsilon - \xi_i^* \\ & \xi_i^* \geq 0, \quad i = 1, 2, \dots, n; C > 0. \end{aligned} \quad (7)$$

The above process can be used to evaluate the effectiveness of online and offline hybrid teaching.

## 4. Simulation Experiments

In order to verify the performance of the online/offline hybrid teaching effect assessment method based on big data analysis in the actual assessment process, a university's civics class was used as the research object for application analysis. The research object is taught in online and offline hybrid teaching mode, the actual assessment of the research object is simulated by computer, the conclusion of the hybrid

teaching effect assessment is set as the basis, and the relevant performance data of the research object is collected in the field, and the following results are obtained by using the method of this paper for teaching effect assessment.

**4.1. Association Rule Feature Extraction Test.** The accuracy of association rule feature extraction in this paper is tested in a set experimental environment. The results of the association rule feature extraction accuracy of this method are shown in Figure 2 under the conditions of different data volumes of evaluation indexes. From Figure 2, under the condition that the data volume gradually increases, the accuracy of the association rule features extracted by this method shows a decreasing trend. However, under the condition that the data volume reaches 5000, the overall accuracy of association rule feature extraction by this method is higher than 92%, and the overall accuracy is at a high level. This indicates that this method can accurately extract the association rules from the data related to the evaluation indexes, which is conducive to improving the accuracy of the evaluation of the mixed teaching effectiveness of civics courses.

**4.2. Overall Evaluation Accuracy Test.** The evaluation method based on learning inputs in the literature [4] and the evaluation method based on network data in the literature [6] were used as the comparison methods to compare the fit between the evaluation results of this paper and the comparison methods on the research object and the set results, and the results are shown in Figure 3. It is clear from the analysis of Figure 3 that, among the three different evaluation methods, this method has the best fit with the set results, and the method of [4] has the lowest fit with the set results. This indicates that the method of this paper has high accuracy in assessing the effectiveness of online and offline hybrid teaching.

**4.3. Evaluating Efficiency Tests.** The method of this paper is to test the evaluation efficiency of the effect of online and offline hybrid teaching, from both the big data integration efficiency test and the overall evaluation efficiency test.

**4.3.1. Big Data Fusion Efficiency Comparison.** The efficiency of big data fusion in this paper is tested in a set experimental environment. The test results of the big data fusion efficiency of this method are shown in Figure 4 under the conditions of different data volumes of evaluation indexes. The analysis of Figure 4 shows that the efficiency of data fusion of each dimension in the evaluation index system of this paper is high. Under the condition that the data volume of each dimension reaches 5000, the time spent on data fusion of three dimensions is less than 1000 ms, which indicates that the fusion of data of each dimension can be carried out quickly by this paper, which is conducive to improving the overall efficiency of the evaluation of mixed teaching effectiveness of civics and political science courses.

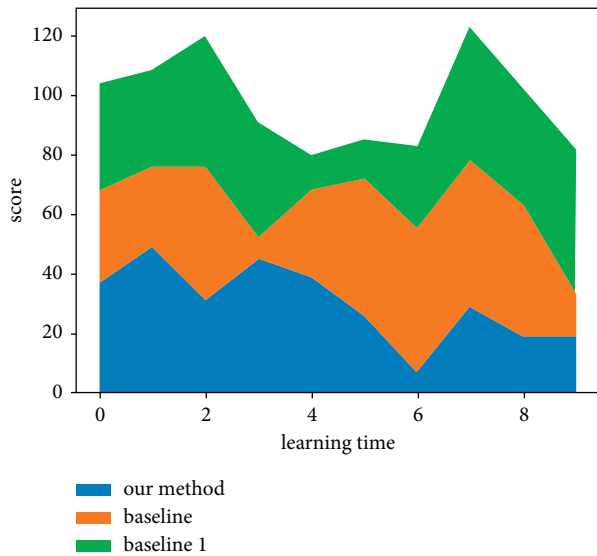


FIGURE 3: Comparison of evaluation results of different methods.

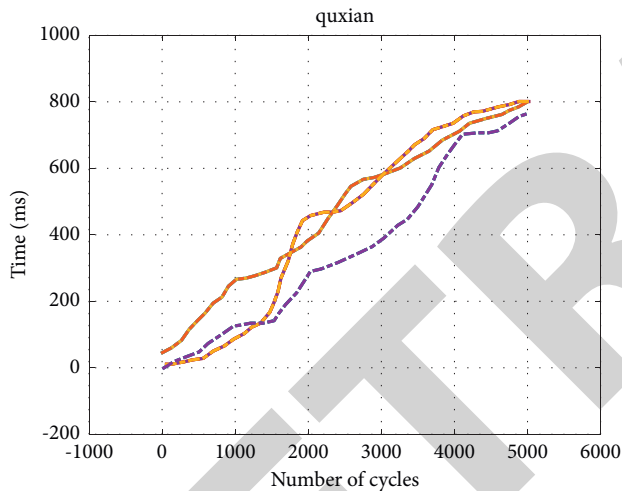


FIGURE 4: Big data fusion efficiency.

## 5. Conclusions

In the context of science and technology such as smart education and online learning space as well as the big data analysis technology, the teaching mode of civics and political science class through online and offline hybrid teaching can obtain all the records of students in the teaching process, and the data analysis based on different dimensions can effectively evaluate the effect of hybrid teaching. In this paper, we study the evaluation method of online and offline hybrid teaching effect based on big data analysis and use a university's civics class as the research object for application analysis. The analysis results show that the application of the proposed method to teaching evaluation, the improvement of civics class performance of each research object reaches 10 points or more, and the application effect is better and more practical. This time, it was applied to different departments of the same university, and in the next step, it can be applied to multiple departments of multiple universities, so as to

further enhance the universality of the practical application of the proposed method.

## Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

## Conflicts of Interest

The author declares that he has no conflicts of interest.

## References

- [1] Q.-K. Meng and M.-F. Qiu, "Integration of eco-civilization education into ideological and political class in colleges and universities," *Eco-Economy: English Version*, vol. 2018, no. 2, pp. 135–140, 2021.
- [2] H. Li, D. Zeng, L. Chen, Q. Chen, M. Wang, and C. Zhang, "Immune Multipath Reliable Transmission with Fault Tolerance in Wireless Sensor Networks," in *Proceedings of the International Conference on Bio-Inspired Computing: Theories and Applications*, pp. 513–517, Springer, Singapore, October 2016.
- [3] H.-G. Wang and L.-T. Xu, "Multi Mode Interactive Information Processing Method in Online Education System of Ideological and Political Course," in *Proceedings of the International Conference on E-Learning, E-Education, and Online Training*, pp. 25–38, Springer, New Jersey, NY, USA, June 2021.
- [4] P. Ye and L. Liu, "Factors Influencing College Students' Behaviours of Spreading Internet Public Opinions on Emergencies in universities," *Information Discovery and Delivery*, vol. 5, 2021.
- [5] W. Li and X. Fan, "Construction of network multimedia teaching platform system of college sports," *Mathematical Problems in Engineering*, vol. 2021, Article ID 6304703, 2021.
- [6] T. F. Waddell, "Can an algorithm reduce the perceived bias of news? Testing the effect of machine attribution on news readers' evaluations of bias, anthropomorphism, and credibility," *Journalism & Mass Communication Quarterly*, vol. 96, no. 1, pp. 82–100, 2019.
- [7] V. L. Bernhardt, *Data Analysis for Comprehensive Schoolwide Improvement*, Eye On Education, Larchmont, NY, New York, Article ID 10538, 1998.
- [8] W. Villegas-Ch, M. Román-Cañizares, and X. Palacios-Pacheco, "Improvement of an online education model with the integration of machine learning and data analysis in an LMS," *Applied Sciences*, vol. 10, no. 15, p. 5371, 2020.
- [9] M. Ciolacu, A. F. Tehrani, R. Beer, and H. Popp, "Education 4.0—fostering student's performance with machine learning methods," in *Proceedings of the 2017 IEEE 23rd International Symposium for Design and Technology in Electronic Packaging (SIITME)*, pp. 438–443, IEEE, Constanta, Romania, October 2017.
- [10] T. Purwoningsih, H. B. Santoso, and Z. A. Hasibuan, "Online Learners' behaviors detection using exploratory data analysis and machine learning approach," in *Proceedings of the 2019 Fourth International Conference on Informatics and Computing (ICIC)*, pp. 1–8, IEEE, Semarang, Indonesia, October 2019.
- [11] G. Liu, "The ways and methods of ideological and political education for postgraduates," *Advances in Educational Technology and Psychology*, vol. 5, no. 3, pp. 80–87, 2021.

- [12] Y. Su, D. K. L. Lee, X. Xiao, W. Li, and W. Shu, "Who endorses conspiracy theories? A moderated mediation model of Chinese and international social media use, media skepticism, need for cognition, and COVID-19 conspiracy theory endorsement in China," *Computers in Human Behavior*, vol. 120, Article ID 106760, 2021.
- [13] X. Jingcai, "Study and Design of Network Assistant Teaching System of Ideological and Political Course for College Students Based on B/S," *Automation & Instrumentation*, vol. 6, 2016.
- [14] T. Zhang, "Construction and Application of Big Data Analysis Platform for Ideological and Political Education in Colleges," in *Proceedings of the 2019 International Conference on Intelligent Transportation, Big Data & Smart City (ICITBS)*, pp. 249–252, IEEE, Changsha, China, January 2019.
- [15] L. Li, "Intelligent evaluation of college students' ideological and political education effect based on big data technology," in *Proceedings of the 2021 international conference on intelligent transportation, big data & smart city (ICITBS)*, pp. 418–421, Xi'an, China, March 2021.
- [16] Z. Hui-ling, "Positive effects of specialty teachers on students' ideological and political education in vocational colleges," *Journal of Architectural Education in Institutions of Higher Learning*, vol. 5, p. 1, 2010.