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Retraction

Retracted: Teaching Design of "Three-Dimensional" Blended Ideological and Political Courses from the Perspective of Deep Learning

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] H. Dong, "Teaching Design of "Three-Dimensional" Blended Ideological and Political Courses from the Perspective of Deep Learning," *Security and Communication Networks*, vol. 2022, Article ID 6046243, 9 pages, 2022.

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Research Article

Teaching Design of "Three-Dimensional" Blended Ideological and Political Courses from the Perspective of Deep Learning

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Since the increasing development of information technology, its integration and curriculum resources have become a new point of view in education and teaching reform. As a result, educational concepts, teaching models, and learning methods have been changed. Moreover, new requirements for the teaching reform of ideological and political courses in colleges and universities have also been put forward. Aiming at the current educational mechanism of ideological education courses in colleges and universities, which has a single form, is not well targeted and lacks synergy. This paper studies and establishes a brand-new three-dimensional hybrid education concept. The characteristics of this concept include (1) timeliness; that is, the basic views of Marxism are unified with the characteristics of the times; (2) pertinence, that is, the combination of ideological education and the characteristics of the students' growth stage; (3) openness; that is, the new curriculum content and creative thinking are connected. Therefore, the three-dimensional hybrid teaching that combines networked teaching with the traditional teacher-centered teaching model has become an inevitable trend of classroom teaching reform at this stage. This paper develops a college ideological education course recommendation system based on deep learning, based on a hybrid collaborative filtering algorithm, and by introducing the effectiveness of the gradually forgetting curve based on changes in user feature, it better solves the shortcomings of traditional collaborative filtering algorithms, such as low efficiency and weak adaptability. Further, a corresponding recommendation system for ideological guidance courses in colleges and universities has been developed. The system runs stably and has strong practicability and robustness. It is of positive significance for creating an ideological and educational atmosphere with different forms and innovation for teachers and students.

1. Introduction

With the advent of the new era, the rapid development of society puts forward higher requirements for education. How to improve students' learning efficiency and ensure the quality of learning in the teaching process has always been a topic of endless debate in the academic circle. Although a large number of distinctive teaching models have been produced in the development of modern education, these teaching models have not fully met the needs of the actual classroom and failed to achieve the desired teaching effect. A single teaching model is difficult to produce good effects on the sensory stimulation and emotional communication of students in the classroom. Under the mixed teaching mode, students may better master knowledge, cultivate abilities, stimulate emotions, and meet the ideological, humanistic, practical, and comprehensive requirements of the nature of the course. At the same time, the rapid development of network information technology has promoted the development and replacement of hybrid teaching models, forming a unified online and offline hybrid teaching model. This blended teaching model optimizes the traditional teaching model, combines the advantages of stable classroom teaching quality and efficient and convenient network teaching, and gives new connotations to blended teaching, which requires scholars to carry out further research on it. Blended teaching is a new teaching model that has been initially practiced and affirmed in a variety of disciplines, and its research has important practical significance. First of all, it is conducive to the overall promotion of the coordinated development of traditional classrooms and online classrooms. Secondly, it helps teachers and students to understand and optimize the

hybrid teaching mode and improve the teaching quality of teachers and the learning efficiency of students. Finally, it provides more references for teachers of morals and rule of law to use and optimize mixed teaching.

As the main channel of ideological and political work in colleges and universities, ideological education course is an important way to promote the construction of the practical education system in colleges and universities. It is also an important part of the theoretical system of colleges and universities. It runs through the entire process of higher education teaching and is an important construction for cultivating the carrier of the socialist system. The founders and successors [1] play a fundamental role in all aspects of strengthening the value orientation of college students, strengthening the propaganda and education of the master method of patriotic dedication, and establishing a whole-process education mechanism [2]. At present, ideological education in colleges and universities mostly adopts the method of collective teaching in large classes and open classes. The form is single, and the pertinence is not strong, and it is impossible to form a personalized collaborative education mechanism. Based on the above shortcomings, combined with the requirements of the new situation of ideological education informatization in universities and the advantages of hybrid teaching mode, a university ideological guidance course recommendation system based on improved collaborative filtering algorithm has been developed, which follows the general software engineering design philosophy [3], optimize the traditional collaborative filtering algorithm, introduce the hybrid collaborative filtering algorithm, and introduce the gradual forgetting curve based on the time sequence of the user's feature change, which better solves the problems of low efficiency and weak adaptability of the traditional collaborative filtering algorithm [4]. The development and application of the above system provides a new way for colleges and universities to develop ideological and political education, which is conducive to improving the comprehensive quality of students' ideological and political education, and it is of positive significance for creating a win-win atmosphere [5]. Section 2 reviews the related works and the works of different scholars in the literature. In Section 3, different methods related to the topic of proposed research are explained. For example, the fundamental ideology and deficiency of traditional collaborative filtering is described. Moreover, a model for ideological and political college courses are established. Lastly, the design of ideological and political course recommendation system is also proposed. In Section 4, we have carried out the experiments, through which we verified the practicality of the proposed technical and advanced methods. In the process, we first collected the data for the analysis, whose sources are described in detail. Then, the evaluation index of a system is recommended, which is followed by the test content and results. These results are analyzed in a comprehensive manner. Finally, the conclusion is given is Section 5.

2. Related Work

Blended teaching originated in foreign business services and training in large- and medium-sized enterprises, and the training effect was significant, with good results, and then gradually introduced into school education. Foreign scholars' research on blended teaching can be summarized in the following aspects.

(1) Carrying Out Research on the Influencing Factors of Blended Teaching. Foreign research scholars also have different conclusions on the influencing factors of blended teaching. Wright et al. believe that gender is a factor that should be considered when blending teaching. They pointed out that women have more positive attitudes towards online learning, and women are more willing to accept the convenience brought by online education. It may be that girls are more self-disciplined when learning online [6]. Joseph and Trinick [7] conducted a research on this basis and found that the experience of girls in the online learning environment is more affected by the learner's own learning and social experience. Ellis et al. and others [8, 9] believe that the length of online learning and the number of courses will also affect the effect of blended learning. Excessive online teaching time may cause students to lose concentration and affect their eyesight. Therefore, the time setting of courses should be considered. Aspects of factors also include the characteristics of each discipline itself.

(2) Performance Research of Blended Teaching. Different foreign scholars also have different opinions on the effect of blended teaching. For example, Sadeghi et al. [10] found that blended teaching improved traditional teaching methods, making knowledge easier to acquire and allowing students to accept massive amounts of online resources. It promotes the frequency of interaction between teachers and students, improves the status of teachers, and makes full use of the advancement of science and technology to the education industry, which increases cost-effectiveness. Waddoups et al. [11] believe that blended teaching gives learners the right to control learning speed, teaching process, resource selection, and time management. Students' learning content and thinking become more open, and they are more in line with the current national standards for student training. Some scholars believe that blended teaching is an effective solution to problems involving learner autonomy or interpersonal relationships.

Domestic scholars have slightly different researches on the connotation of blended teaching, while Chen believes that blended teaching mainly refers to face-to-face learning in traditional classrooms and learners in colleges and universities based on a certain online teaching platform under the guidance of teachers. Organized, planned, and clear learning goals are organically combined to achieve a teaching model that complements the advantages of the two [12]. Tang [13] believes that the blended teaching model from its most fundamental point of view is to combine the various advantages of traditional teaching with the various advantages of information-based teaching to develop into a relatively novel teaching mode. In the process design research of blended teaching, almost all researchers divide the design process into three stages: pre-class, in-class, and after-class, but the specific curriculum application tools are different. For example, Zhang et al. [14] also designed the teaching process into three stages: the pre-class stage, where teachers release learning

information, and students carry out online self-learning; in the stage, teachers answer questions and answer questions, and students discuss cooperative learning; after class, teachers summarize feedback and students reflect and improve. It can be seen that they emphasize students' autonomous inquiry learning in the classroom, fully mobilize students' enthusiasm and initiative, and carry out student-led classroom learning. Regarding the reflection on the practical application of blended teaching, different research papers have different conclusions. For example, Zhang [15] believes that blended teaching can well integrate traditional teaching, activity single-guided learning, and networked learning and truly realize high school political learning. The goal of knowledge, abilities, emotions, attitudes, and values of the students has improved the quality of students while also improving their own professional qualities, but we must also pay attention to breakthroughs in classroom discipline, classroom efficiency, and important and difficult points. However, Zhang believes that the implementation of blended teaching in physics classes enables students to better understand and learn physics knowledge and make themselves better masters of learning. Similarly, the application of blended teaching is not mature enough, and practical experience is insufficient [15]. In summary, foreign scholars' research on blended teaching mainly focuses on the core concepts, influencing factors, performance research, and practical application. They have studied the influencing factors that affect the development of blended teaching and affirmed the advantages and effects of blended teaching at the same time, and they believe that blended teaching can better improve students' learning efficiency, give students more learning autonomy, and better cultivate students' innovation and creativity. In comparison, domestic scholars have made different results in the research of blended teaching. They have researched the principles of blended teaching, theoretical support, and the design of teaching process. However, blended teaching is in school education practice.

This research first analyzes and demonstrates the background and practical requirements of blended teaching and its application in the course of ethics and rule of law and clarifies the theoretical and practical significance of the research; combined with the current research status and practical applications of blended teaching models at home and abroad circumstances, the focus and dimensions of the research are determined, and the research ideas and methods are clarified. Secondly, it explains the connotation and characteristics of blended teaching and explores the theoretical basis behind it. It is believed that Marxist epistemology, constructivist learning theory, and humanistic learning theory can provide theoretical basis for it, which can help us understand the advantages of blended teaching and its teaching value and significance in moral and rule of law courses.

3. Method

In this section, different methods related to the topic of proposed research are explained. For example, the fundamental ideology and deficiency of traditional collaborative filtering is described. Moreover, a model for ideological and political college courses are established. Lastly, the design of ideological and political course recommendation system is also proposed.

3.1. Basic Principle and Deficiency of Traditional Collaborative Filtering. Collaborative filtering algorithm uses swarm intelligence to make fuzzy recommendation and makes personalized and correlation recommendation based on three-dimensional hybrid features within the range of communication. The algorithm mines several personalized feature points based on recommendation rules as candidates from a large number of feature points. Collaborative filtering algorithm has good adaptability [16], and recommendation rules can be adjusted adaptively according to different three-dimensional hybrid features. Collaborative filtering algorithm is still effective for long-tail keywords, which can better solve the long list of points of feature identification and recommendation questions. The collaborative filtering algorithm only relies on the user's single dimensional behavior without dimensionality extension, and it does not need to have a deep understanding of the content of recommendation and prediction, so it has a wide range of practical applicability. Collaborative filtering algorithm also has inherent defects, mainly reflected in the cold start mode of initial data, which requires the collection of a large number of user behavior lists in the start-up stage of the algorithm [17]. Therefore, it is not suitable for some scenarios lacking initial data. Because the collaborative filtering algorithm adopts swarm intelligence to carry out fuzzy recommendation, it is often unable to provide the basis and mechanism of recommendation and is not suitable for some applications with strong logic.

According to different target points, collaborative filtering recommendation algorithms can be divided into two categories, namely, user-based collaborative filtering algorithm (UBCF) and item-based collaborative filtering algorithm (IB-CF). This paper takes item-based collaborative filtering algorithm as an example to explain the basic principle of traditional collaborative filtering algorithm; see it in Figure 1.

Item-based collaborative filtering algorithm establishes the list relationship between commodities through the user's personalized rating of a commodity and then recommends users and predicts their feature points based on the list relationship between commodities [18]. Users in one, a commodity grade on behalf of the user attitudes and preferences of the commodities; If the user bought two kinds of different goods at the same time, the show has a list of relationships between two goods, both has the high correlation; when the user decides again to buy one of the two goods, another commodity can predict potential demand for the user.

And collaborative filtering algorithm based on item logic diagram corresponding to the first of several different users set up commodity scale, obtain some similarity between goods situation, and then evaluate Euclidean distance, Euclidean distance table, analyze the close degree of the

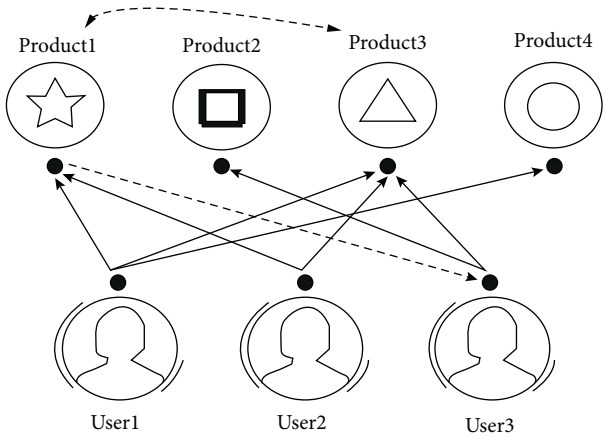

Figure 1: Logic diagram of item-based collaborative filtering algorithm.

qualitative relationship between different goods [19], and finally evaluate Pearson's correlation. The quantitative value of the closeness of the relationship between different commodities is concluded from the Pearson correlation evaluation price table, and then commodities are recommended to users according to the relevance of these commodities.

3.2. Establishment of Model for Ideological and Political Courses in Colleges. The traditional collaborative filtering algorithm characterizes the preference by comparing the correlation in the quantitative form and uses the most recent features in the object set to predict and generate the recommended objects. The traditional collaborative filtering algorithm has a good recommendation effect [20]. At the beginning of the introduction of the traditional collaborative filtering algorithm, because of the lack of a large number of reliable data, there are serious sparse data, unable to effectively for the target users find recently set point of feature, making the algorithm real-time performance poorer. Considering that the audience of ideological and political course recommendation system in colleges and universities is relatively fixed and at the same level, object-based collaborative filtering algorithm is adopted to establish the recommendation model of ideological and political course in colleges and universities [21]. The modeling process is as follows:

(i) *Collect User Behavior Data*. In order to avoid sparse initial data, students' ideological and political course preference data were collected by form and grouped according to different feature points to form an initial cold start data set. In order to eliminate the noise in the data set and the user's misoperation, data mining algorithm is adopted to filter the data noise. In order to constrain the data set within [0, 1], it is necessary to normalize the data set. The general method is to divide all kinds of data by the maximum value in this class.

(ii) *Collect User Behavior Data*. Quantitative calculation of similarity is based on vector method, based on Euclidean distance calculation theory, assuming that x and y are any two points in n-dimensional space. The Euclidean distance between them is shown in

$$d(x, y) = \sqrt{\left(\sum (x_n - y_n)^2\right)}. \quad (1)$$

According to formula (1), when $n = 2$, the Euclidean distance is the distance between two points in the plane. In order to use the Euclidean distance for quantitative similarity calculation, the form transformation of formula (1) is carried out, as shown in

$$\mathrm{sim}(x) = 1 + d(x, y), \quad (2)$$

where the distance between X and Y can represent students' quantitative preference for a certain ideological and political course.

(i) *Neighbor Calculation Based on Similarity Threshold*. On the basis of obtaining the quantitative preference degree of students for a certain ideological and political course, the neighbor between students and ideological and political course is searched according to the degree of quantitative preference. Considering timeliness, the neighbor calculation method based on similarity threshold is selected; see it in Figure 2.

The basic principle is to ensure that the fall in the current point as the center, a distance of K all points as the current point in the area of neighbors, the algorithm can obtain an uncertain number of students' ideological course of neighbors, but there will be no big fluctuations and quantitative order of preference deviation, especially in the treatment of isolated point has obvious advantages. It improves the consistency of neighbor calculation in ideological and political courses.

(ii) *Calculate the Recommended*. Based on the information of adjacent students and adjacent education courses, a calculation recommendation mechanism is formed, which is to use the ideological preferences of all target students of a course as a vector to calculate the similarity between students' political education courses and to take an education after similar courses. The course, according to the historical preferences of the target students, predicts whether the current students' ideological and political courses have stated preferences and calculates a list of ideological and political courses as a recommended and predicted list.

In order to improve the shortcomings of the traditional collaborative filtering algorithm, strengthen the real-time performance of the recommendation model of ideological and political courses in universities and expand the applicable scope of the recommendation model of ideological and political courses in universities; a recommendation model of ideological and political courses in universities based on the improved collaborative filtering

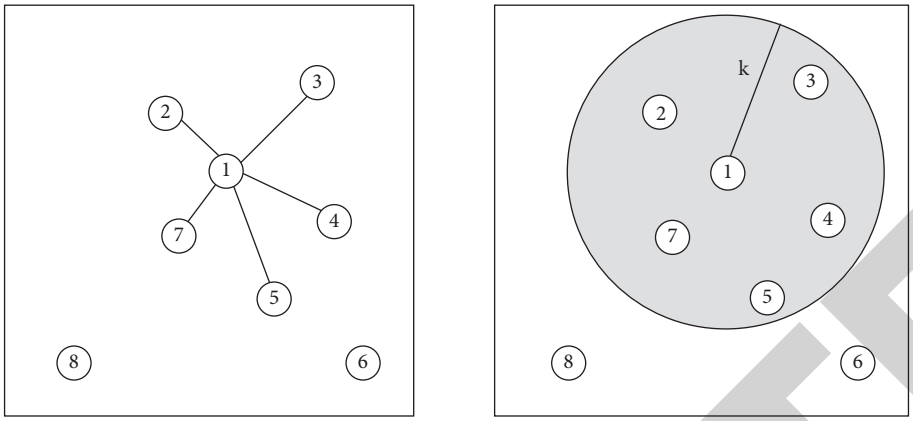

Figure 2: Schematic diagram of neighbor calculation based on similarity threshold.

algorithm was proposed and implemented. Based on the actual demand of the recommendation system of ideological and political courses in colleges and universities, the hybrid collaborative filtering improved algorithm is adopted to better solve the disadvantages of the traditional collaborative filtering algorithm, such as low efficiency, weak adaptability, and novelty exclusion, by introducing the gradual forgetting curve based on the change of user feature timeliness. The model optimization process is as follows:

(iii) *Introduce Historical Preference Fusion Mechanism.* In order to overcome the problem of user cold start due to sparse initial data, a historical preference fusion mechanism is introduced to group and fuse the historical preference information of all students. It can be presented in

$$\operatorname{sim}(i,j) = \frac{\sum_{u\in U}\left(R_{ui}-\overline{R}_i\right)\left(R_{uj}-\overline{R}_j\right)}{\sqrt{\sum_{u\in U}\left(R_{ui}-\overline{R}_i\right)^2}\sqrt{\sum_{u\in U}\left(R_{uj}-\overline{R}_j\right)^2}}, \quad (3)$$

where U represents the set of all students, R_{ui} and R_{uj}, respectively, represent the historical preference data of student U for ideological and political course i and j in a certain week. $\overline{R}_i$ and $\overline{R}_j$, respectively, represent the mean score of historical preference data of ideological and political course i and j in a certain week.

(iv) *Introduce Historical Preference Fusion Mechanism.* In order to adapt to the variability of student scoring information in the time dimension, the historical preference fusion similarity set was extended to a dynamic data set, which gradually adapted to the actual needs of dynamic changes of feature points of college students in the new era and improved the personalized, targeted, and accurate recommendation. In view of the rapid transfer of students' feature points and students' preference for current events, the recommendation effect is highly correlated with time. By introducing the forgetting curve $R = e^{-t/s}$ based on the timeliness of students' feature and optimizing equation (3), time decay factor $s(u,v,i)$, incorporating the influence of time on the recommendation rule, the time decay factor is expressed as

$$s(u,v,i) = e^{\left(-\alpha\left(\left|t_{ui}-t_{vi}\right|/t_{i\max}-t_{i\min}\right)\right)}, \quad (4)$$

where t_{ui} represents the time when student u develops preference for and scores ideological and political course i; t_{ui} represents the time when student v develops preference for and scores ideological and political course i; $|t_{ui}-t_{vi}|$ represents the time difference between student u and student i when they develop preference for ideological and political course i; $t_{i\max}$ represents the maximum time when ideological and political course i is favored; $t_{i\min}$ represents the minimum moment when ideological and political course i is preferred, and a represents the decay rate of time decay factor. Based on the above analysis, equation (4) can be optimized, as shown in

$$\operatorname{sim}(u,v) = \frac{\sum_{i\in l_{uv}}\left(R_{ui}-\overline{R}_i\right)\left(R_{uj}-\overline{R}_j\right)s(u,v,i)}{\sqrt{\sum_{i\in l_{uv}}\left(R_{ui}-\overline{R}_i\right)^2}\sqrt{\sum_{i\in l_{uv}}\left(R_{uj}-\overline{R}_j\right)^2}}. \quad (5)$$

When calculating the similarity degree of ideological and political course preference between student u and student v, the forgetting curve $R = e^{-t/s}$ based on the timeliness of student feature and the time attenuation factor $s(u,v,i)$; the restriction of time change on recommendation rules is clarified, indicating that the longer the time interval between student u and student's preference for ideological and political course i is, the smaller the influence of similarity between students will be due to the addition of time attenuation factor.

3.3. Design of Ideological and Political Course Recommendation System. Through the actual investigation of teachers and students, an analysis of the functional requirements of

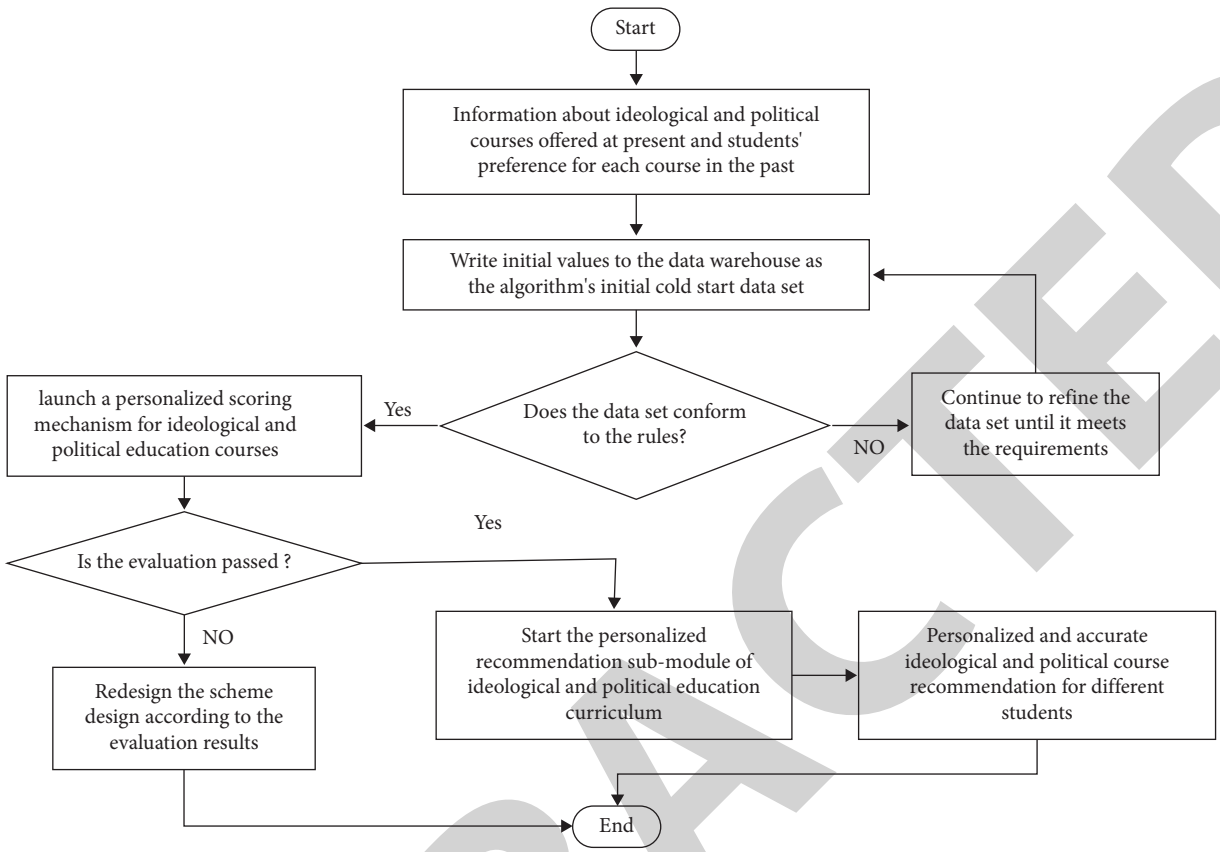

Figure 3: Workflow model flow chart of the system.

the recommendation system for ideological and political courses in colleges and universities based on collaborative filtering is formed. On this basis, the logic design and function of the system follow the general process of software engineering to design the system framework [23], and the system adopts the B/S architecture to realize the framework. Function modules of the system design follows the principle of practicability, modular and extensible; the core of the system module mainly includes college ideological instruction course selection module, college ideological instruction student assessment module, college ideological instruction course recommendation module, system, system maintenance and update module, and so on. The closed-loop dynamic recommendation mechanism of political courses forms a virtuous cycle and provides a basic guarantee for the development of ideological and political education in colleges and universities.

Based on the functional logic design idea of the system, combined with the general model of workflow technology in software engineering, the workflow model of the system is designed to ensure that the system operates in accordance with the predetermined process [24]. It can be seen in Figure 3.

After determining the applied student group, the system initialization operation is carried out, mainly completing the input of ideological and political course information currently offered by the school and students' preference information for each course in the past historical period and writing the initial value to the system data warehouse as the initial cold start data set to improve the collaborative filtering algorithm. Start the personalized scoring mechanism of ideological and political education courses and evaluate the individualized ideological and political education programs formulated by colleges and universities from the perspective of multidimensional effect evaluation. The submodule of personalized recommendation of ideological and political education courses is launched to make personalized and accurate recommendation of ideological and political education courses for different students, improve students' feature points, and ensure the formation of a three-dimensional situation of "watering flowers and roots, teaching people, and teaching hearts" in ideological and political education in colleges and universities.

Considering that the system is oriented to the community, the implementation environment of the system should be universal, which can facilitate students to conveniently access the system in the dormitory and other daily living environment. Based on the workflow model of the system [25], the system is programmed in the VS2016 environment, and the system runs on Microsoft Windows with strong compatibility 8 operating system platform; the server adopts Intel Core I5 CPU, main frequency 2.4 GHz, system running memory 8 GB, storage space 2 TB, network bandwidth 50 M exclusive, system data storage software is Microsoft MS-SQL Server 2016. In order to improve the portability of the system, modular design is adopted, by

Table 1: All performance indicator data.

N	1	4	7	10	13	16	19	22	25	28
Acc.	0	0.023	0.020	0.021	0.022	0.024	0.020	0.017	0.015	0.014
Rec.	0	0.069	0.134	0.172	0.210	0.276	0.275	0.276	0.276	0.313
F	0	0.035	0.035	0.038	0.039	0.044	0.037	0.032	0.029	0.027
Cov.	0.097	0.379	0.504	0.536	0.618	0.620	0.621	0.622	0.619	0.620

calling the dynamic link library file (DLL files) in the form of an improved collaborative filtering algorithm-based college ideological instruction course recommendation system [26]; the system can realize college ideological instruction course selection and evaluation of the course, students on a particular ideological course preference data statistics, according to different students individual for accurate ideological personalized course recommendations, and other functions.

4. Experiment and Results

In this section, we have carried out the experiments, through which we verified the practicality of the proposed technical and advanced methods. In the process, we first collected the data for the analysis, whose sources are described in detail. Then, the evaluation index of a system is recommended, which is followed by the test content and results. These results are analyzed in a comprehensive manner.

4.1. The Data Source. At present, it is difficult to obtain users' personal information such as course selection from large-scale open course websites. In order to carry out data testing smoothly, we adopt the method of data simulation to simulate only the data set of computer science. First of all, the name of the online course under the computer category of a website is crawled, and then the user data is obtained through a questionnaire survey, including historical behavior and future tendency. In this way, the real scene of online course learning is simulated to the maximum extent. Although the actual course selection situation of online learning is more complicated, the above experimental data simulates the subjective tendency of users in online course learning, which can reflect the characteristics of the experimental algorithm. This paper proves the effectiveness of the algorithm by comparing the values of N in the same data set.

4.2. Recommend the Evaluation Index of the System. When websites provide recommendation services, Top N recommendation algorithm generally adopts accuracy rate, recall rate, and coverage rate to judge prediction accuracy. Accuracy is defined as

$$P = \frac{\sum_{u\in U}|R(u)\cap T(u)|}{\sum_{u\in U}|R(u)|}, \tag{6}$$

where $R(u)$ is the recommendation list based on the user's behavior and $T(u)$ is the user's behavior list.

Coverage is defined as

$$C = \frac{\left|\cup_{u\in U} R(u)\right|}{|I|}, \tag{7}$$

where $R(u)$ is a list of recommendations based on user behavior and I is a list of general items. Recall rate is defined as

$$R = \frac{\sum_{u\in U}|R(u)\cap T(u)|}{\sum_{u\in U}|T(u)|}. \tag{8}$$

4.3. Test Content and Results. Because different N values will significantly affect the values of various evaluation indexes of the algorithm, therefore, in the actual website application, only the selection of appropriate recommendation N value can achieve the best recommendation effect because the data set selected in this paper is relatively. Therefore, N value is from 1 to 28, and N value is selected at an interval of 3. The data obtained are shown in Table 1.

As can be seen from Table 1, as the number of recommendations N continues to increase, the accuracy rate formed by this algorithm generally increases first and then decreases. When N value is 16, the accuracy rate reaches the highest, and with the increase of N value, the accuracy rate turns into a downward trend. Therefore, it can be concluded that there is no significant positive or negative correlation between accuracy and N value. With the continuous increase of the recommended data N, the recall rate generally presents an upward trend. As the recommended N value increases, the number of recommendations also increases, and its repetition with the actual behavior list of users also increases. However, the behavior list of users is fixed, so it is not difficult to understand that with the increase of the recommended N value; the recall rate presents a rising trend. However, there is no significant positive or negative correlation between accuracy and recall rate and N value. Therefore, F value, namely, the harmonic average of accuracy and recall rate, is used to determine the most appropriate recommended N value for this data set. As can be seen from Table 1, F value obtained is the highest when N value is 16. Therefore, based on this data set and this algorithm, it is recommended that N value is 16 for the best effect. With the increase of N, the coverage rate obviously shows a rising trend until the coverage rate is stable and reaches the maximum value.

In order to verify the actual working effect of the recommendation model of ideological and political courses in colleges after introducing the historical preference fusion mechanism and incorporating the gradual forgetting curve mechanism based on the change of user feature timeliness, GitHub is adopted to open the model based on Python provided by the source platform for generality and objectivity 3.5.2 Kernel Sklearn library (multidimensional constraints such as scale, feature, target, and noise are set through programming, and the Sklearn library is used to

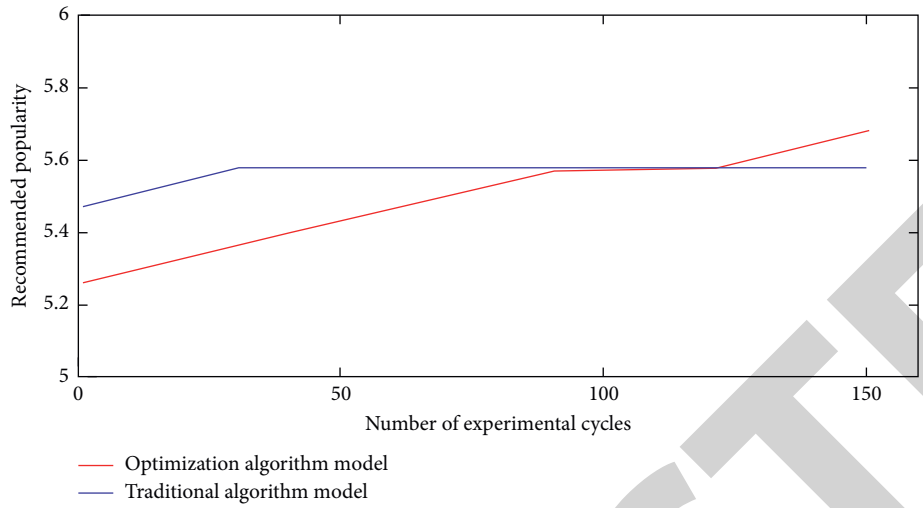

Figure 4: Comparison of recommended popularity between the two models.

generate simulated data sets that meet the conditions). Meanwhile, MovieLens-100K data set is used as the control data set, and the recommendation accuracy, recall rate, coverage rate, and popularity of ideological and political courses are optimized from multidimensional dimensions The simulated model was verified, and the kernel was compiled based on Python 3.5.2. The graphical simulation was carried out under PyCharm 3.5 environment, and the comparison curves were given in the simulation diagram with significant difference markers. The final simulation results of the experimental data set are shown in Figure 4.

In order to make the test data set provided by Sklearn library more suitable for the recommendation model of ideological and political courses in colleges and universities, regression mapping is carried out on the user feature data set and the user invisible feature data set, which improves the purity of the data set, reduces the redundancy of the data set, and improves the simulation efficiency.

5. Conclusion

As a new type of teaching model that is constantly explored and developed, blended teaching must follow the trend of the times and integrate the latest teaching techniques and methods with traditional teaching models to continuously improve the quality of education and teaching effects. The mixed teaching mode can force students to participate actively through comprehensive planning before, during, and after class so that the mixed teaching can integrate the teaching materials, materials, multimedia resources of the traditional classroom, and the assistant material made by the students and teachers. Ideological and political courses are different from other disciplines. Its ultimate goal is to help students establish a correct outlook on life, values and world outlook, inspire students' feelings for themselves, their nation, the country, and the world, and train them into qualified and responsible citizens of the new era. Therefore, how to make students actively participate in classroom activities throughout the entire classroom is the basic pursuit of teaching. Based on the mechanical rigidity, lack of pertinence, lack of synergy, and inability to form a personalized collaborative education mechanism in the current college ideological education and teaching courses, this article develops an improved model. Collaborative filtering technology college thought class recommendation system, based on a hybrid collaborative filtering algorithm, through the introduction of a progressive forgetting curve based on changes in user feature, optimize the design of the college thought class recommendation model, simulation shows that the model is the best, "lve" is low efficiency, traditional collaborative filtering algorithm is weakly adaptable, and new abuses are excluded. The system can realize the functions of selecting and evaluating college ideological guidance courses, statistics of students' preference for specific ideological guidance courses, and accurate and personalized course recommendation according to different students. The system design logic is clear, and the internal work follows the general requirements of software engineering. The functional modules are divided reasonably, and the expected design purpose is fulfilled well, and the conditions for popularization and use in universities in our country are initially available.

Data Availability

The data sets used during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The author declares that he has no conflicts of interest regarding the publication of this paper.

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