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Law Case Teaching Combining Big Data Environment With SPSS Statistics

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ABSTRACT

This paper proposes an online learning platform learner DM method based on the improved fuzzy C clustering (FCM) algorithm, constructs a learner feature database, and combines clustering analysis and SPSS statistical methods to statistically summarize the big data of law, thus improving the deficiencies of static and absolute classification of students in the student model. In the experiment paper, the improved algorithm is implemented and the experimental data is analyzed. The results show that the learner behavior feature extraction model in this paper has fewer errors and higher recall rate. Compared with the traditional CF algorithm, the error rate is reduced by 19.64% and the recall rate is increased by 22.85%. This study provides better targeted teaching programs and case resources for legal case teaching and promotes the innovation of legal case teaching mode.

KEYWORDS

Big Data Environment, Case Teaching, Data Mining, Law

INTRODUCTION

With the development of technology, strengthening the legal education system in universities is crucial for teaching effectiveness. This positively impacts college students' internship work and reduces the boredom in law classes. Strengthening the legal education system in universities can also enhance students' interest in learning and ability to learn independently. Optimizing university law classrooms' teaching efficiency more quickly is another significant effect of strengthening the university law education system (Darmon & Le Texier, 2016). Law education is an integral part of China's education system. It is an essential task for law educators to actively explore and practice new and suitable instructional methods (Cheah, 2017). The convenience brought by the Internet provides more choices for the study of law courses, and the growth of big data provides us with more possibilities (Ohlhausen, 2016). By collecting students' learning behavior data, we can infer their learning progress, learning status, and learning status so that the school can have a more intuitive understanding of students' information and provide guidance for their better learning (Taylor & Taylor, 2022). Driven by big data, students strengthen their existing knowledge and ask new questions through case screening, case discussion, case analysis, or other interactive methods.

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In the teaching of law, we must carry out teaching reform according to its laws and training objectives, combined with the characteristics of the course, and seek breakthroughs in instructional methods (Wang et al., 2022). The theory of law course is professional and practical, requiring students to have a solid theoretical foundation, combine theory with practice, and improve their legal practice ability (Rasulov, 2021). In the traditional online instructional platform, teachers organize teaching according to instructional progress, and students can only learn according to the pre-set learning path. The system does not play the role of teachers' immediate guidance and regulation and cannot realize individualized teaching (Meier, 2016). The law case base and laws and regulations driven by big data will comprehensively strengthen students' practical training. The innovation of law case instructional mode driven by big data makes personalized learning possible. In this article, a learner data mining (DM) method based on improved fuzzy C clustering (FCM) algorithm for an online instructional platform is proposed, and the statistics of legal big data are summarized by combining cluster analysis and SPSS (Statistical Package for the Social Science) statistical methods, to provide better targeted teaching schemes and case resources for law case teaching and promote the innovation of law case instructional mode. In the teaching process of law class, teachers will adopt the Case method according to the teaching content and purpose. Through the Case method, students can deeply analyze the legal situation of specific events and focus on developing their practical ability. The Case method can also improve students' problem-solving ability through independent thinking and teamwork. Students can combine theory with practice from the Case method to improve application skills and professional ability.

Case teaching of law plays an essential role in the vocational education of law school, and it is one of the essential ways to cultivate the professional ability of basic law (Gazzini, 2016). Under the influence of traditional teaching ideas, the content and methods of case teaching are no different from the traditional instructional mode, and they are just the means for teachers to impart authoritative knowledge. There are problems, such as the deviation of understanding of case teaching, the writing of teaching cases not meeting the objectives of case teaching, and the lack of classroom interaction and student participation (Green & Hendry, 2022). As an essential part of China's higher education, the law should keep pace with the times and implement a more modern reform plan for traditional education. Law case teaching with the help of an online instructional platform driven by big data can solve the problem of role-playing not being in place due to the large number of students, different learning levels, and acceptance ability (Fu, 2022). After the network instructional platform has been used for some time, the system database has accumulated data, such as user registration information, access control information, course scores, and other practical and valuable data. However, these data have not been fully utilized (Medeiros et al., 2018). The platform can only display the learning content statically, users cannot make personalized learning content according to their hobbies, and learners cannot evaluate their learning situation in time and effectively. The main methods and innovations of this article are as follows.

First, this study constructs a behavioral characteristic model of law learners based on the improved FCM algorithm. By collecting and analyzing the recent usage information of learners, the learning similarities of users are analyzed, and these data are matched and compared with DM patterns. A specific ranking is based on the matching degree to predict what users will learn next.

Second, the model uses DM function to analyze learners' characteristics and combines the SPSS statistical analysis to collect legal big data. Through law, it compares the analysis results of learners' characteristics with the pre-established behavior target standards and provides feedback to help law learners correct their learning behavior.

Third, in terms of instructional platform, this method permeates the growth of big data into the network big data platform and online instructional platform, combines the different data characteristics of students, carries out personalized training, and provides platform support for legal research and project promotion.

RELATED WORKS

In education, using big data technology and statistical analysis methods can improve the quality of education and innovation capabilities. Nersessian et al. (2018) studied designing and implementing a personalized navigation system based on DM and incorporated adaptive mechanisms into remote platform education systems. Avila et al. (2019) applied Web and DM to the growth of intelligent teaching platforms, discovering students' interest points through association rules, mining learners' understanding of knowledge points through BP neural networks, and classifying students through clustering analysis. Mcgregor et al. (2019) collected and analyzed learners' recent access information and learning content, conducted pattern matching, and effectively ranked based on the degree of matching to predict the most likely learning content for learners in the next step. Yang et al. (2022) applied association rule mining technology to the analysis of students' grades in order to identify the internal factors that affect students' grades, focusing on the relationship between course offerings and course grades in online platforms. Cui et al. (2022) utilized the sequence pattern analysis method to mine the sequence relationships of knowledge points in the behavior sequence of log learners and improved the knowledge base through the rules they obtained. Poudyal et al. (2022) guided learners' learning direction by labeling navigation buttons and hypertext links. Wakelam et al. (2020) proposed a theoretical part of a user feature analysis system based on learners' static and dynamic information during the learning process.

In the era of big data, utilizing big data technology and platforms can lead to deeper thinking and exploration. Al Rahmi et al. (2019) studied the impact of big data technology on knowledge management sharing and its sustainability for educational purposes. López-Belmonte et al. (2019) explored the analytical abilities of teachers in the era of big data and their importance in digital learning. Yalan et al. (2021) discussed the innovation of ideological and political education in the era of big data and its role in cultivating socialist core values and social responsibility. Kyritsi et al. (2019) analyzed the privacy threats in educational data mining and their impact on students' rights and freedoms and proposed suggestions to protect students' privacy and ethics. These studies indicate that data mining and statistical analysis methods will bring more opportunities and challenges to the education field in the big data environment.

Whether in traditional law classroom teaching or online teaching, it can reflect the individual differences of learners, that is, the differences in individual cognitive ability, knowledge mastery, and quality level. This article proposes a DM method based on an improved FCM algorithm for network instructional platform learners, analyzes learners' characteristics using the DM function, and summarizes legal big data statistics using SPSS statistical software. Comparing the results of learners' characteristics analysis with the behavior target standards formulated in advance provides feedback to help law learners correct their learning behavior, improve their learning ability and interest, and thus effectively improve their learning effect.

METHODOLOGY

Law Case Instructional Mode Combining Big Data Environment With SPSS Statistics

Problems in the Traditional Law Case Teaching

In the traditional case instructional mode of law, students can only obtain cases based on the teachers' pre-retrieval and case-sorting textbooks. As such, there are traditionally few ways to obtain cases, and students do not need to find their cases but wait for the teacher to publish them. This passive and inflexible case teaching is not conducive to solving practical legal problems in a professional workplace, which limits students' horizons and also reduces effective interaction and deeper thinking in the classroom. The selection of case content has formed fixed legal thinking: first, clarify the

content to be explained in the course and search for teaching cases for specific content (Ba & Li, 2021). This shift will lead teachers to deliberately avoid cases involving related new technology fields when selecting cases, and their way of thinking will solidify the relevant knowledge in the new field into irrelevant knowledge points, which significantly limits students' intake of legal knowledge in the new field and their participation in case discussion.

Second, the traditional case teaching of law pays more attention to solving the problem of single-department law, which is professional from the perspective of division of department law. However, its disadvantage is that it ignores the relationship between department law and department law and the complexity of actual legal problems. Such a case instructional mode is not conducive to cultivating students' thinking of solving practical legal problems, and eventually, the case teaching will remain on paper (Ndebele & Ndlovu, 2013). Unlike the 'spoon-feeding' instructional mode of teachers' one-way knowledge transmission in the classical classroom knowledge instructional method, the case instructional method advocates finding the best solution from the opposite point of view and finding the most normative consensus or decision through explanation and demonstration in the procedure. This 'interactive' case discussion is an effective instructional method for achieving good teaching results. It focuses on the equal interaction between teachers and students, classmates and opposing viewpoints, and students become the main body of case analysis classroom activities. Because of the dynamic and uncertainty of case teaching, the effect and evaluation of traditional law case teaching can never be scientifically constructed, and paper case textbooks cannot keep up with the updates of laws, regulations, and judicial interpretations, which seriously lags behind the actual needs, making it difficult for law case teaching to play its due advantages.

Innovation of Law Case Teaching Driven by Big Data

There are also many valuable phenomena and laws in teaching big data, which require educators to use DM to discover these phenomena and laws, to help law educators make effective decisions in education and teaching, curriculum development, and cultivating innovative talents. A large quantity of case teaching is an essential part of cultivating law students' legal thinking in law education and solving practical problems after law students go to society, and big data provides unlimited possibilities for this. Big data is used to screen many cases accurately and assign roles so teaching subjects can flip (Zhou, 2016). In recent two years, due to the epidemic situation in COVID-19, although the offline instructional mode of traditional teaching is still the primary method of legal education, online teaching has been added to supplement and coordinate education, and the primary and secondary roles between them are distinct and indispensable.

University law teachers actively create online and offline collaborative instructional modes based on perfectly mastering the reasonable collocation between offline teaching and online teaching The rapid data flow and dynamic data system in big data can keep up with the latest cases and changes in laws, regulations, and policies to meet the requirements of law case teaching (Li, 2016). Big data has expanded the research field of statistics. It is of significance to improve the value of statistical work by taking advantage of the changes in the way of thinking brought by big data and mining the social and commercial value of big data resources. The introduction of SPSS software in law teaching allows students to retrieve cases before class. The most prominent advantage of SPSS is that the operation interface is straightforward and understandable for users. In addition, through continuous development, update, and maintenance, SPSS has integrated statistical analysis, data mining, prediction analysis, decision support, and other functions and can provide 136 functions of 11 types for data operations. Students can conclude by the statistical summary of legal big data through SPSS software, and the conclusion can be discussed with classmates and teachers in class, improving students' software application ability and enriching the theoretical basis for discussion. The selection of each case should be moderate in difficulty, with typical problems to be solved, and can reflect the relevance, consistency, and comprehensiveness of legal knowledge. Therefore, teachers will bear the heavy responsibility of

finding cases that can enable students to fully learn legal knowledge in the vast number of cases and teach students the skills of screening cases with big data to stimulate students' interest in learning.

The law case base and laws and regulations base driven by big data will comprehensively strengthen students' practical training. In addition to the combination of books and judicial practice, the network era has provided many teaching resources for law education (Yustina et al., 2020). The main advantages of a big data case base are that it covers many cases, a wide geographical area, and a long time, conducive to students' comparative analysis and summary of the refereeing basis and controversial points of similar cases. The educational resources it provides are more accurate and richer in content, and it can provide learners with more resources that meet their preferences or needs by using technology. Faced with many tried and untested cases, plus the limited teaching time in the school, choosing suitable, valuable, and typical cases has become the key and core of law case teaching.

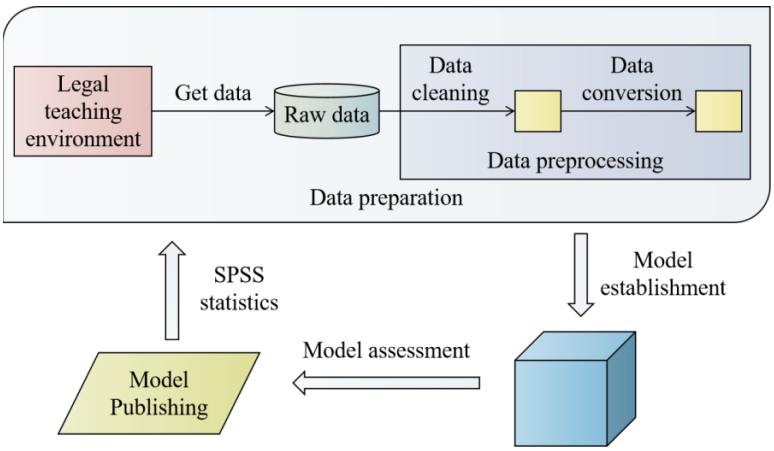
Learner DM in Network Instructional Platform

Although school textbooks, corresponding laws and regulations, and teachers' experience foundation are the primary instructional contents of the law, teachers must keep pace with the times and add the latest cases, materials, and knowledge to their daily teaching to expand students' comprehensive literacy and strengthen students' adaptability to judicial work driven by big data in future work according to actual conditions, big data-driven Internet's high-capacity, dynamic, and sharing characteristics. At the same time, through knowledge retrieval and hyperlink-related knowledge point operation, the accurate extraction of data information can be realized, so that the instructional content can be accurate and rich enough to meet the weak knowledge points of students' data content. Educators use interactive data to improve learners' enthusiasm, intelligent diagnosis to analyze the lack of instructional content, and big data personalized counseling to find learning loopholes. In this process, we should avoid being subject to big data, but we should change from a passive recipient of big data to a leader in identifying and utilizing big data and from a big data consumer to an analyst and leader of big data.

The rapid growth of educational informatization has further promoted the innovation of educational DM. The stage of educational DM generally includes data preparation, model establishment, model evaluation, and release. The stage of educational DM is shown in Figure 1.

Knowledge must be transformed into form before it is stored in a computer, a task usually undertaken by a knowledge engineer. The choice of knowledge representation method is crucial for the instructional platform. The appropriate knowledge representation method is conducive to retrieving course content and helps students establish a sound knowledge structure. The purpose of data preprocessing is to provide "clean" data for DM and to deal with the noise existing in the data to

Figure 1. Educational DM process



ensure that the noise does not exist or is very small. The existence of noise will interfere with the establishment of the whole decision tree, lead to errors in the establishment of the tree, and increase the information of error rules to ensure integrity and consistency in the stage of DM. Assume that $\min A$ and $\max A$ are the maximum and minimum values of attribute A, respectively. The calculation method of mapping an original value v of the attribute A into a value v' in the interval $\left[new\_\min A, new\_\max A\right]$ through min-max normalization is:

$$v' = \frac{v - \min_A}{\max_A - \min_A}\left(new\_\max A - new\_\min A\right) + new\_\min_A \tag{1}$$

If the new value interval is [0,1], the formula can be simplified to:

$$v' = \frac{v - \min_A}{\max_A - \min_A} \tag{2}$$

If, after standardization, the newly input data exceeds the value range of the original data, that is, it is not in the original interval $\left[\min A, \max A\right]$, an out-of-bounds error will occur.

In formula (3), normalize the original value v of the attribute A to v' using $z-score$

$$v' = \frac{v - \overline{A}}{\sigma_A} \tag{3}$$

Among them, $\overline{A}$ and σ_A are the average and standard deviation of the original value of attribute A respectively. When the maximum and minimum values of an attribute A are unknown, or there are outliers beyond the range of values, it is not easy to use the maximum-minimum normalization method, but the z-score normalization method is applicable.

Using the conditional independence relationship between random variables can reduce the complexity of joint distribution in computer systems. It can improve the speed of inferring the edge distribution of given conditions in joint distribution so that the probability method can also be successfully applied in large-scale problems. Let the probability distribution of the random variable set $X = \left\{X_1, X_2, \ldots, X_n\right\}$ be $P\left(X_1, X_2, \ldots, X_n\right)$. If all variables are $\left\{0, 1\right\}$, $2^n - 1$ parameters are needed to determine the joint distribution. The joint distribution can be written as:

$$\begin{aligned} P\left(X_1, X_2, \ldots, X_n\right) &= P\left(X_1\right) P\left(X_2 \middle| X_1\right) \ldots P\left(X_n \middle| X_1, X_2, \ldots, X_{n-1}\, 0\right) \\ &= \prod_{i=1}^{n} P\left(X_i \middle| X_1, X_2, \ldots, X_{i-1}\right) \end{aligned} \tag{4}$$

For $\forall X_i \in X$, if there is $\pi\left(X_i\right) \subseteq \left\{X_1, X_2, \ldots, X_{i-1}\right\}$, the condition of X_i assimilation $\left\{X_1, X_2, \ldots, X_{i-1}\right\} / \pi\left(X_i\right)$ is independent when $\pi\left(X_i\right)$ is given, and the above formula can be changed to:

$$P\left(X_1, X_2, \ldots, X_n\right) = \prod_{i=1}^{n} P\left(X_i \left| \pi\left(X_i\right)\right.\right) \tag{5}$$

A management data model is constructed using the DM method to analyze and process the original educational data. On the one hand, the educational development trends of each educator are tracked and mastered holistically, and more reasonably personalized education management strategies are tailored. On the other hand, according to each individual's education and teaching process and effect feedback, it provides more refined and effective personalized management services.

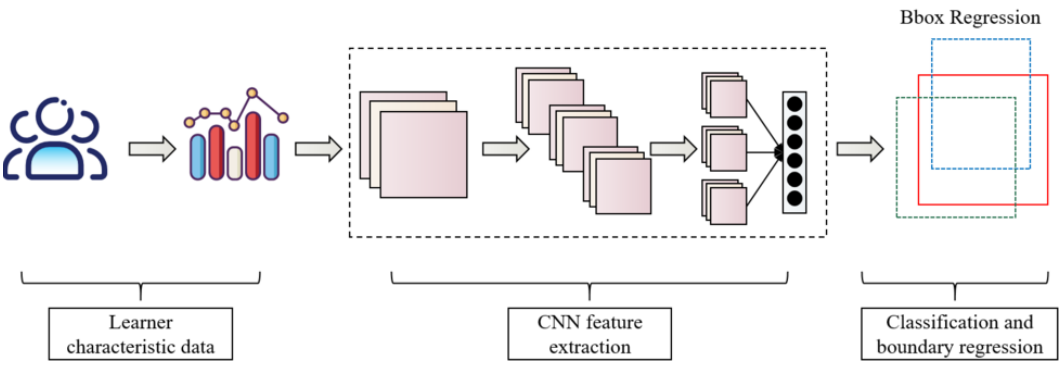
Behavior Characteristic Model of Law Learners

Under the overall connection of big data, the subprograms of online teaching resources can be highly integrated, the outdated knowledge and messy fragments can be eliminated, and the regular data resources can be updated in real time. After making full use of the convenience of the growth of network technology driven by big data, law students have formed a knowledge system related to law and related disciplines in many lively hot cases. Law teachers in universities should establish a comprehensive education mode of routine and network, that is, to integrate relevant knowledge under the network environment into daily traditional instructional content. Law teachers should always pay attention to the current situation of the network, collect offline teaching materials through news and hot websites, and update the content of law courses in time. Students should establish innovative thinking of big data in legal research. Universities should pay due attention to guiding students to make full use of the characteristics of massive information of big data in the teaching process and use data analysis technology to count knowledge resources such as legal opinions, referee gist, controversial focus, and referee results in cases, to analyze problems and predict results, and lay the foundation for students' legal empirical research. The learner behavior feature extraction model is shown in Figure 2.

In formula (6), use u_{ij} to represent the results of the law class comparison. The comparison judgment matrix is obtained after comparing all elements at each level,

$$U = \left(u_{ij}\right) n * n = \begin{bmatrix} u_{11} & u_{12} & \ldots & u_{1n} \\ u_{21} & u_{22} & \ldots & u_{2n} \\ \ldots & & & \\ u_{n1} & u_{n2} & \ldots & u_{nn} \end{bmatrix} \tag{6}$$

Figure 2. Learner behavior feature extraction model



Calculate the normalization for each column:

$$\overline{u_{ij}} = \frac{u_{ij}}{\sum_{k=1}^{n} u_{kj}} \tag{7}$$

Calculate the average of the standard columns and determine the final weight as shown:

$$\hat{w} = \frac{1}{n}\sum_{j=1}^{n} \overline{u_{ij}} \tag{8}$$

The feature vector is the weight of each factor:

$$\hat{w} = \left(\hat{w}_1, \hat{w}_2, \ldots, \hat{w}_n\right) \tag{9}$$

Compute the consistency metric for the constructed matrix as formula (10):

$$CI = \frac{\lambda_{\max} - n}{n-1} \tag{10}$$

Compute the largest eigenvalue of the judgment matrix as formula (11):

$$\lambda_{\max} = \frac{1}{n}\sum_{i=1}^{n} \frac{\left(U\hat{W}\right)_i}{\hat{W}_i} \tag{11}$$

$\left(U\hat{W}\right)_i$ indicates that the W -th element of vector i is used.

Suppose the target scholar is a new user. In that case, it is necessary to match the information, such as learner registration information and browsing records, with learners in different clusters, find the clusters with the same preferences as the target learners according to the principle of maximum similarity, and then recommend services in the next step.

RESULTS, ANALYSIS, AND DISCUSSION

In the face of the huge impact of the growth of big data information technology on law education, universities should pay close attention to various problems such as the backward instructional tools and instructional methods brought by this new technology, especially the shortcomings of the traditional case instructional mode of law, and find solutions in time and quickly. Network learning behavior uses multimedia and computer technology and relies on the Internet, a multi-level and multi-dimensional learning method. This way of learning requires learners' self-control and self-adjustment, and they can use their autonomy to decide learning content, learning progress, learning objectives, learning methods and strategies, and regulate their whole learning process. Obtaining learners' needs and interests and accurately describing learners' interests are the basis for providing high-quality personalized recommendation services. Only by accurately grasping learners' interests

can we provide personalized educational information services for learners according to their interests. Figure 3 shows the subjective evaluation results of law students on the traditional acquisition methods of teaching resources and the personalized recommendation model of law case resources in this article.

Most law students say that the personalized recommendation model in this article can help them accurately locate the information they need in a large quantity of law case resources, meet the needs of students, and tap their potential interests simultaneously. This is of positive significance for the school to promote the case instructional mode of law innovations. Teachers can track and record learners' learning trajectories through computer technology to grasp learners' learning behavior. According to the objective characteristics of learners in online learning, some or all learning characteristics can be selected as the statistical attributes of online learning.

When constructing the student characteristic analysis model, we should first consider the openness and dynamics of the student model. Openness allows students to change the information in the student model, and dynamics ensure the accuracy and timeliness of the student information. Taking the recommendation accuracy of legal case resources as the test index, the traditional CF algorithm is selected as the comparison object, and the experimental results are shown in Tables 1 and 2.

Figure 3. Students' subjective scores

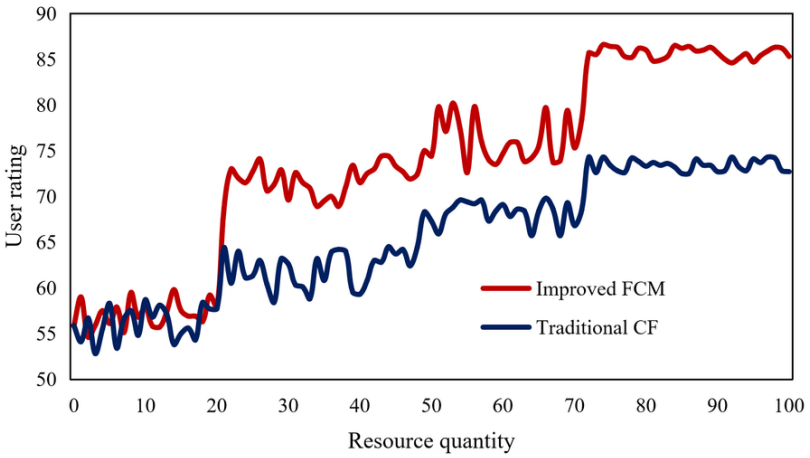


Table 1. Recommendation accuracy of legal case resources of this method

Sample Size	Resource Recommendation Accuracy (%)
15	95.56
30	93.22
45	92.85
60	92.47
75	91.94
90	91.52
105	90.18

Table 2. Accuracy of recommending legal case resources of traditional CF

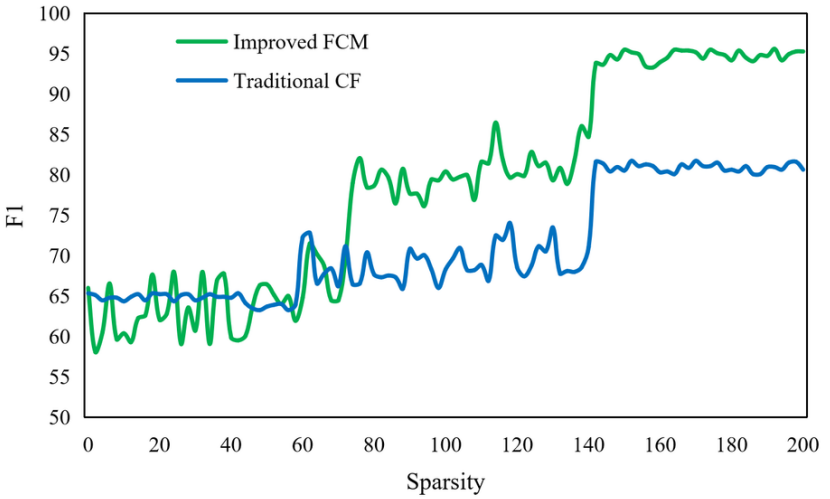
Sample Size	Resource Recommendation Accuracy (%)
15	91.25
30	85.33
45	83.1
60	75.41
75	73.25
90	72.36
105	70.66

For example, according to the time and frequency of learners logging in to specific courses, the duration of online learning, published topics, and replies. According to these attributes shown by learners in online learning, this attribute information can be quantified as the data needed for DM. When a learner uses a personalized recommendation system, the personalized recommendation system will analyze the learner's preference information according to the learner's historical behavior to understand the learner's demand motivation and recommend the goods or services that meet the learner's demand motivation and preference information. This recommendation service is the active behavior of the system, which can make recommendations for learners anytime and anywhere. The comparison result of the F1 value between the traditional CF algorithm and this algorithm is shown in Figure 4.

Using this algorithm to recommend law case resources has good optimization characteristics and rapid convergence. When learners change themselves at a particular stage, their interest preferences often change, and this change will be reflected in the recommendation system, which will make timely adjustments and updates according to this change.

Reasonable selection and quantification of learners' learning characteristics, taking these quantified characteristics as parameters, can help teachers understand learners' personality

Figure 4. Comparison results of F1 values



characteristics and learning behavior, help establish learners' learning information model, and facilitate teachers in obtaining the most intuitive student information. The results of testing samples using the traditional CF model are shown in Figure 5. The results of sample testing using this method are shown in Figure 6.

It can be analyzed that the personalized recommendation model based on this algorithm is better than the traditional CF in both accuracy and efficiency. Because students' grading of resources can reflect students' preference for resources to a great extent, it can be considered that the resources presented to students at last are probably the collection of resources that students are interested in.

The centralized storage and management mode of resources significantly restricts the sharing and use of resources. Based on this management mode, the law case resource sharing system can only meet the needs of local or a specific number of learners. When a large number of learners accesses

Figure 5. Traditional scatter plot of actual value and predicted value of CF

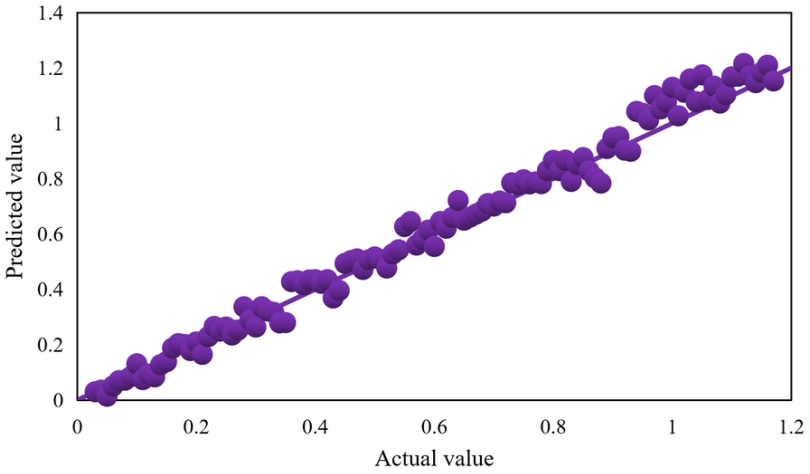
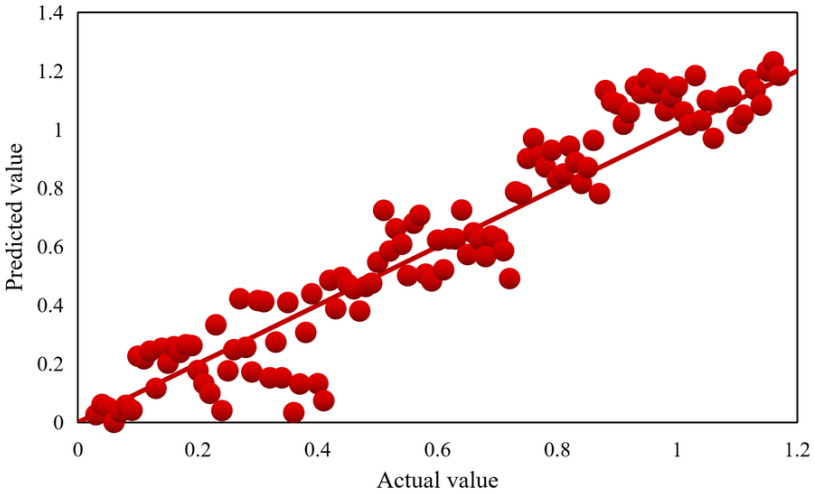


Figure 6. The scatter plot of the algorithm's actual value and predicted value



concurrently, there will be a bottleneck in resource access. Input sample parameters get operation results at the output layer through the hidden layer, compare the obtained results with the expected results to generate error values, transmit the error values back to the input layer from the output layer through the hidden layer, and modify the connection weights layer by layer, and so on until the error values tend to be minimum. In this process, the more samples, the more accurate the weights are. The change of MAE of the algorithm with the number of visits is shown in Figure 7. Figure 8 shows the change of the average recall of the algorithm with the number of visits.

The results show that this article's learner behavior feature extraction model has a lower error and higher recall. Compared with the traditional CF algorithm, the error is reduced by 19.64%, and the recall is increased by 22.85%. Faced with a vast number of legal case resources, learners don't need to consult and analyze every piece of information, which wastes time and may not find the information they need. However, with the help of the recommendation system, the system actively assists learners in removing uninteresting information and actively recommends learners. In the network instructional

Figure 7. The change of MAE of the algorithm with the quantity of visits

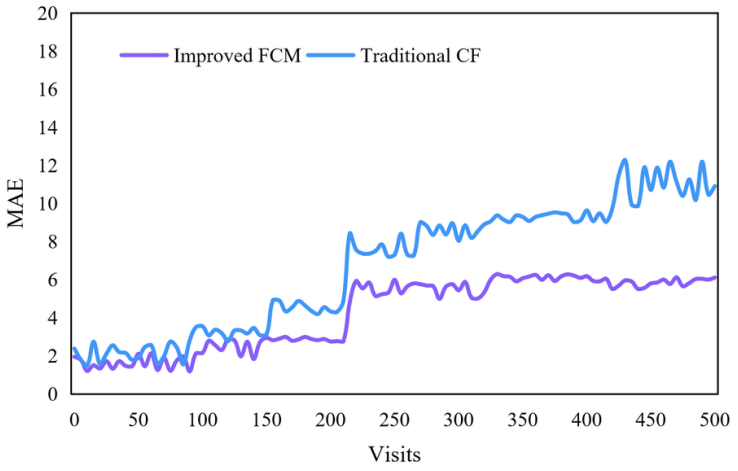
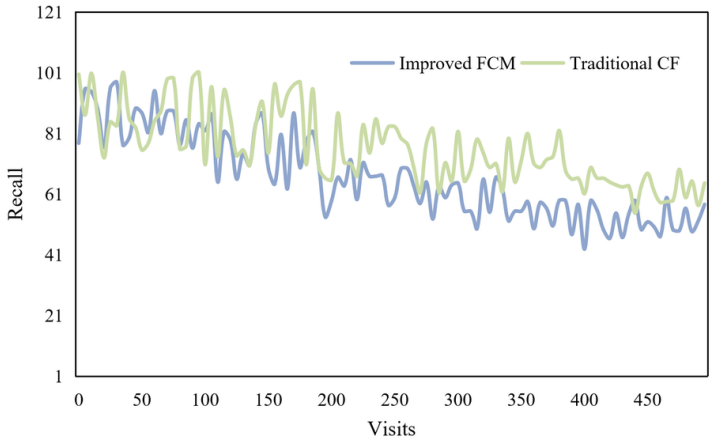


Figure 8. The change of the average recall of the algorithm with the number of visits



platform, teachers should provide flexible instructional modes and methods, which can stimulate students' enthusiasm for learning, enable students to actively cooperate with teachers' methods to learn, and fully reflect students' enthusiasm and initiative for learning. Through the combination of big data environment and SPSS statistics, courses such as case teaching are no longer limited to the cases in the textbooks, and more representative typical cases can be found recently. This work needs to be completed by teachers in advance. After finding typical cases, students can be assigned the remaining tasks to find information and sort out their views.

CONCLUSION

This paper proposes an improved learner DM method of online teaching platform based on FCM algorithm. It classifies students by combining cluster analysis and SPSS statistical methods to provide better targeted teaching programs and case resources for legal case method. The results show that this article's learner behavior feature extraction model has a lower error and higher recall. Compared with the traditional CF algorithm, errors are reduced by 19.64%, and the recall is increased by 22.85%. With the help of a recommendation system, the system actively assists learners in removing uninteresting information and actively recommends learners. Driven by big data, the introduction of SPSS statistical software must change the traditional teaching concept as a whole, create a teaching environment for practical classes, and provide conditional support so that students can use professional software to search and count, summarize and summarize in a special practical class classroom, to comprehensively and meticulously analyze different cases and form their own opinions through discussion.

Although this study has achieved certain results, some future work can be further explored. First, data sources can be further expanded to increase the variety and quantity of learner behavior data to improve the student models' accuracy. Second, more advanced machine learning algorithms can be attempted for feature extraction and classification, thereby improving the efficiency and accuracy of the entire system. In addition, it is possible to strengthen the user feedback mechanism, collect more user opinions and suggestions, and continuously optimize the design and implementation of personalized recommendation systems. These works will provide valuable references for better promoting the case method of law in the future.

AUTHOR NOTE

The figures and tables used to support the findings of this study are included in the article. The authors declare that they have no conflicts of interest. This work was not supported by any funds. The authors would like to express their sincere thanks to those whose techniques contributed to this research.

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