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Exploration of Intelligent Teaching Means of Ideological and Political Education in Colleges and Universities Under the Background of "Mass Entrepreneurship"

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ABSTRACT

The concept of "great ideological and political education" requires comprehensive ideological education to better achieve the educational goals of "innovation and entrepreneurship." This article analyzes and explores the intelligent teaching methods of ideological and political education in universities under the background of "innovation and entrepreneurship," and constructs an intelligent teaching system of ideological and political education in universities under this background. The experimental results show that the stability of the system reaches 95.2%, and the learning efficiency of students has been improved by 11.5%. This work provides important application guidance for big data analysis and IoT sensor data.

KEYWORDS

Big Data Analytics, Double Creation Background, Ideology Education in Universities, Intelligent Teaching Means, IoT Sensor Data

INTRODUCTION

"Mass entrepreneurship and innovation" has become an important concept and strategic policy for current social development. With the continuous progress of China's economy and technology, more and more people are paying attention to innovation and entrepreneurship. As an important component of ideological education in universities, ideological and political education must adapt to the needs and development trends of the times, explore new teaching methods, and help college students better master the skills of entrepreneurship and innovation. Online teaching, as a supplement and extension of traditional education, has become an indispensable part of ideological and political education in universities. In this context, utilizing advanced technologies, such as artificial intelligence, for

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intelligent teaching has become a trend. The intelligent teaching system has the characteristics of automation, personalization, and efficiency, which can better meet the learning needs of students and improve their learning efficiency and grades. This article takes the ideological and political education in universities under the background of "double innovation" as the research object, aiming to explore intelligent teaching methods for ideological and political education in universities, in order to improve the quality of cultivating talents for mass entrepreneurship and innovation. This article will conduct research from the following aspects: Firstly, by reviewing the literature on ideological and political education in universities, summarizing its advantages and disadvantages, and based on this, proposing the research ideas of this article; Secondly, the authors will focus on exploring the relevant information of intelligent teaching systems for ideological and political education in universities under the background of "double innovation;" Finally, the system will be validated and performance analyzed through experimental analysis. At the same time, the research will also analyze the challenges and problems faced by intelligent teaching methods and propose corresponding solutions. In the context of "mass entrepreneurship and innovation," this study is of great significance. The authors hope to use intelligent teaching methods to help more college students master the skills of innovation and entrepreneurship and contribute to cultivating high-quality talents with innovative abilities and entrepreneurial spirit.

The innovation of this article lies in the combination of "double innovation" and "intelligent teaching of ideological education", exploring intelligent teaching methods for ideological and political education in universities. This innovative topic enriches the traditional theoretical system of ideological education and highlights the importance of "double innovation" for ideological and political education.

Based on the related research of ideology education modes, the structure is as follows: The first section is the introduction. This part mainly expounds the background and research significance of ideology education in universities under the background of "Double Creation," and puts forward the research purpose, method, and innovation of this paper. The second section is a summary of the literature on ideology education in universities, summarizing its advantages and disadvantages, and putting forward the research ideas of this paper. The third part is the methodology section, focusing on exploring the relevant information of the intelligent teaching system for ideological and political education in universities under the background of "double innovation." The fourth section is the experimental analysis. This part is verified by experiments in data sets to analyze the performance of the system.

LITERATURE REVIEW

The economic value of ideology education is that the labor created by ideology education can promote the growth and development of the social economy and meet people's growing material and spiritual needs (Shao, 2019). According to the dialectical relationship between Marxist economic base and superstructure, the role of ideology education in social and economic development cannot be ignored. Strengthening the innovation of college students' ideology education under the background of "Double Creation" is an important starting point for universities to cultivate innovative and entrepreneurial talents. Contemporary universities shoulder the four missions of scientific research, talent cultivation, social service, and cultural leadership, the most important of which is talent cultivation. With regard to what kind of people universities should cultivate and the definition of talents in society, the demand for talents in different social stages and the connotations of talent have changed with the times (Chen & Ding, 2019). At present, the rise of knowledge-based economy and the changes of industries, occupations, and trades have made innovative talents become modern talents needed by society (Mao, 2018).

The problems presented by utilitarian education under the rapid development of a social market economy make the innovative work of college students' ideology education more and more stressful. On the one hand, in order to promote the "Double Creation" education mode smoothly under the

background of "big ideology education," college students must be led to recognize the correct values of the ideology education background of "Double Creation" under the "Double Creation" education mode. And on the other hand, technical guidance for the reform of the professional teaching mode of innovative thinking and entrepreneurial thinking must be provided, so as to construct a brand-new education mode that conforms to the atmosphere of "Double Creation" in the new era (Zhang & Liu, 2017; Wang, 2019). The idea of "Double Creation" can better combine innovation, entrepreneurship, and ideology education of college students from a broader perspective (Zhao, 2019; Jing & Kong, 2018). Innovation education and entrepreneurship education are interrelated and restrict each other. In the "mass entrepreneurship and innovation" education, innovation education is mainly to train students' innovative thinking and innovative ability. Entrepreneurship education is mainly to turn students' abilities into productive forces and guide students to put their innovative consciousness and ability into practice. The effective cooperation between the two can optimize the talent training mode of colleges and universities, and significantly improve the ability and quality of college students.

College students should be encouraged to actively participate, and teachers should record the educational process, adjust educational ideas, and create innovative and entrepreneurial training institutions, so as to optimize the "great ideology education." Therefore, this paper analyzes and explores the intelligent teaching methods of ideology education in universities under the background of "Double Creation." Compared with the construction of an intelligent teaching system of ideology education in universities under the background of "Double Creation" and other systems, this system has a certain theoretical level and practical value (Liu et al., 2017).

MATERIALS AND METHODS

Innovation in Ideological and Political Education

The times are developing, the society is progressing, and the development of ideology education for college students is in a new stage. It is necessary to introduce new educational concepts to be consistent with the times and innovate ideology education for college students. Many scholars have put forward relevant research on ideology education, and different scholars have different views. Most of them express their views on the innovation of ideology education according to their own understanding from their own research fields. Although there are some similar views in some fields, the differences are still very obvious. Shen Wei and Xu Yi (2017) think that the theory of ideology education is the education theory of citizens, and the core content of the education theory of citizens is the theory of political socialization. As a new branch discipline, the theory of political socialization belongs to the field of modern Western politics, which contains a very complete and rich content of bourgeois ideology education. Zhang Yi (2019) believes that to innovate ideological education, we must first innovate the concept of ideological education. At present, facing the new situation, we must renew the concept of ideological education and explore new ideas to promote the transformation of ideological education from traditional to modern. Wang T, Fan Y, and Wang Y (2017) think that the concepts of scientific education, people-oriented, lifelong learning, and systematic education should be established. Set up a simple education view of social value only, and set up a new correct value view of the unity of social and personal values. To establish the concept of moral education first, universities should ensure the organic unity of the development value of universities and the first value of moral education, as well as the organic unity of the value of teaching, leadership, management, service, and education and the first value of moral education. Cao Xing and Chen Li (2017) believe that combining feasibility with effectiveness, flexibility with principle, interaction with compatibility, highlighting key points, and giving classified guidance will cause a timely transformation of mature experience into a standardized system. Guided by this, some tentative ideas are put forward, such as the construction of leadership and inspection mechanism, pre-replacement and prevention mechanism, motivation and incentive mechanism, guidance and cultivation mechanism, various credit and mass participation mechanisms, and learning and training mechanism. Lin He, Marxism SO (2017) think

that the innovation of ideology education mechanism should formulate a set of effective laws and regulations, and rely on the standardization, stability, and restriction of the system to improve the operability of ideology education. Yan Yi (2011) believes that the traditional indoctrination education method in the past has not adapted to the development of today's society. In the past, the traditional indoctrination education method focused on the absolute authority of education. It emphasizes that in college teaching, students must obey the teacher's orders and learn what the teacher teaches, thus ignoring students' initiative. Therefore, in order to adapt to the development of the new form, the ideology education of college students must abandon the teacher's straight-line way of knowledge indoctrination, change the traditional "preaching" method into a "participation" education mode, and stimulate students' enthusiasm for autonomous learning.

From the representative research literature listed above, although the literature on ideology education is abundant, there are still some limitations in the academic research on "Double Creation" education, which is relatively weak and needs to be deepened. However, there are not many systematic research works, and some problems need to be further discussed. Therefore, it is necessary to explore and study the intelligent teaching methods of ideology education in universities under the background of "Double Creation," which will further explore and develop such research in the future. Based on this, this paper makes a detailed analysis and discussion on the mode of ideology education in universities under the background of "Double Creation," focusing on exploring the intelligent teaching methods of ideology education in universities and constructing the intelligent teaching system of ideology education in universities, which can improve the efficiency of ideological, political, and academic education of college students. Students can design teaching courses according to teachers' teaching characteristics, which enhances students' initiative.

Ideology Education Mode in Universities Under the Background of "Double Creation"

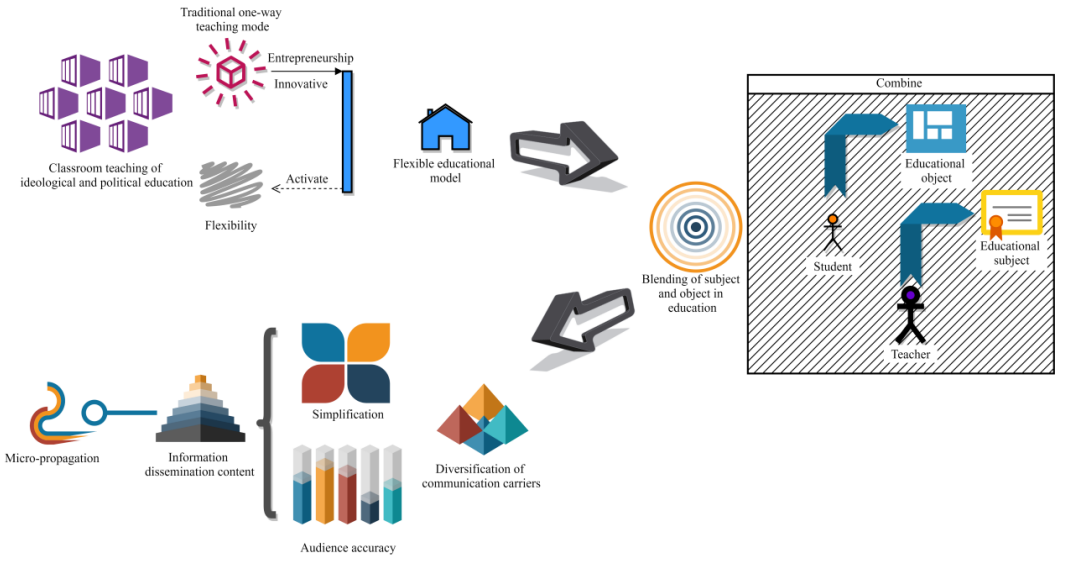
At present, most colleges and universities will promote the collaborative cooperation of ideological and political education and mass entrepreneurship and innovation education in the collaborative education system, combine the educational means and teaching contents of the two, fully tap the potential of college students, and comprehensively improve the comprehensive quality, comprehensive ability and ideological and moral character of college students. At the same time, ideological and political education can better cultivate the ability of college students to analyze and solve problems independently and develop dialectical thinking methods, which is conducive to the cultivation of college students' thinking abilities in mass entrepreneurship and innovation education. Therefore, it can be seen that there is importance of ideological and political education in mass entrepreneurship and innovation education.

Teachers are responsible for ensuring that students always hold positive thoughts and pay attention to constantly stimulating students' innovative thinking when carrying out the project (Wang, 2015). First, the case sharing method is adopted, and students are guided to share their collected cases through the setting of different thematic case seminars, and then the "Yes, and…" evaluation method is used to conduct group evaluation, so that students' ability to analyze, solve and evaluate problems can be developed. Second, by brainstorming, students are divided into several groups to encourage their divergent thinking and free discussion, so as to stimulate their inspiration in the fierce collision of students' thinking. Third, consider exchanging the traditional roles of teachers and students, respecting students' learning subject status, promoting students' self-management and self-education by adopting various ways, such as communication, discussion, and sharing, and in the process, completing the cultivation of students' creative ability(Yang & Xie, 2018; Yang, 2019). In the warm-up publicity and teaching competition project of "Double Creation" activities, positive energy ideology elements should be integrated into innovative and entrepreneurial projects, so that they contain ideology elements and achieve the real value of ideology education (Wei, 2018). On the specific details, the school should not only enhance the selection and publicity of innovative and entrepreneurial practice

activities, but also analyze their real value and significance for students, or choose politics, morality, and emotion when organizing practical training activities. Thus, students can learn about innovative and entrepreneurial projects in a real sense, and be taught by ideology education. Among them, the change chart of ideology development trend in universities is shown in Figure 1.

Establish "Double Creation" projects on the basis of ideology education. The main manifestation of "mass entrepreneurship and innovation" education activities on university campuses is to organize students to actively participate in China's "Double Creation" competition, "Internet +" competition, and other competition activities or red knowledge competitions, which mainly require students to construct and practice "mass entrepreneurship and innovation" projects with practical significance and ideology content. In these "mass entrepreneurship and innovation" activities, "positive energy" is also a necessary element, which directly reveals that good "Double Creation" projects should have in-depth ideology ideas as the basis and guidance to show the real value of their ideology ideas. Therefore, teachers should prepare and organize "Double Creation" activities from the ideology aspects. First, according to the requirements of "Double Creation" projects, they should actively explore "mass entrepreneurship and innovation" activities with excellent ideology ideas and educational value, plan effective and systematic feasible schemes, and enrich the expression of their ideology significance and educational level. The whole process is also to instill students' ideology ideas into students' impressions (Hu, 2019). Secondly, after defining the other "Double Creation" projects, students' internal knowledge of ideology and politics should be explored and set off the value and educational level of ideology and politics from the side (An, 2022;Wang et al., 2022). The teaching mode of "entrepreneurship and innovation" for college students is a systematic project, involving many teaching links, which cannot be carried out unilaterally by colleges and universities. Only with the cooperation of local government departments, social enterprises, and other brother colleges and universities can an organic whole be formed. This requires that the education and teaching management personnel of colleges and universities implement the role of organizer, include entrepreneurship and innovation teaching into the professional compulsory courses, comprehensively popularize the knowledge content of "mass entrepreneurship and innovation," and use the case teaching method to mobilize the enthusiasm of students for entrepreneurship and innovation.

Figure 1. Changes of ideology development trends in universities



Exploration of Intelligent Teaching Means of Ideology Education in Universities Under the Background of "Mass Entrepreneurship and Innovation"

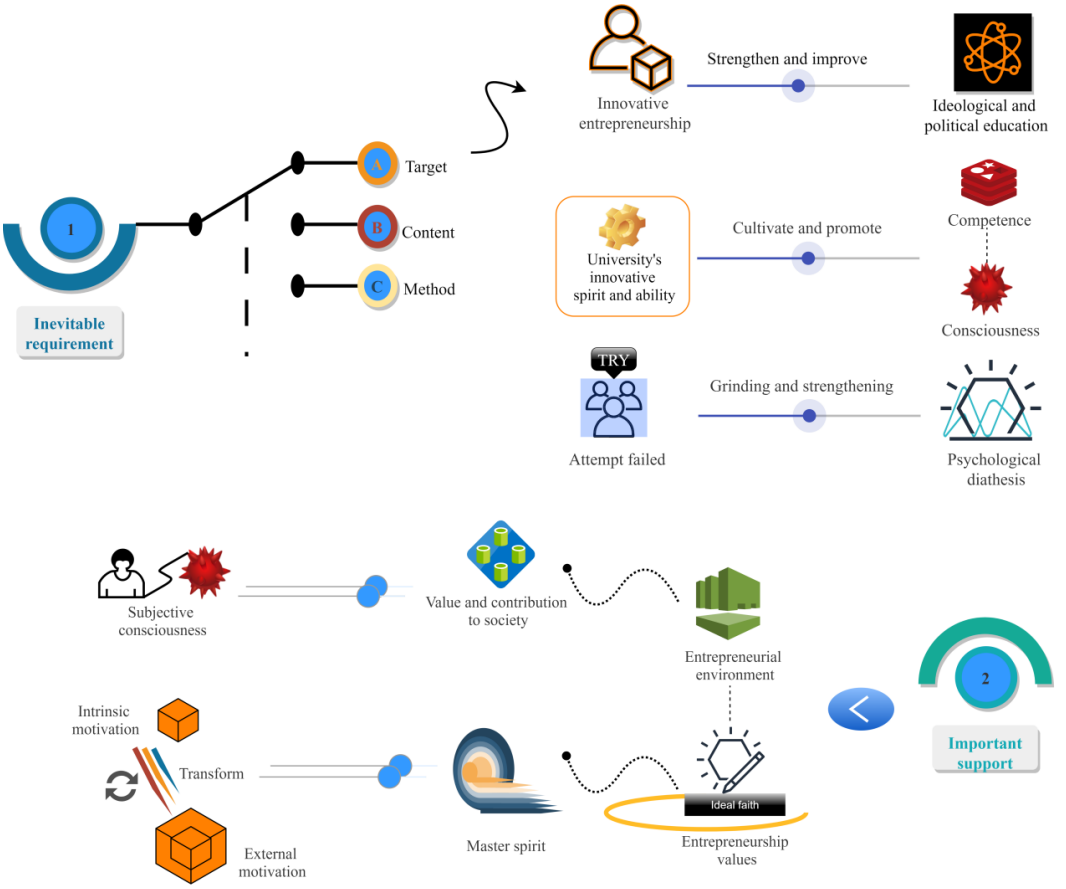
With the increase of the amount of knowledge that people need to master, it is required to have a good learning method to replace the traditional learning methods that are obviously incompatible with the current situation (Li et al., 2021; Zhou et al., 2022). As for the construction of college students' entrepreneurship and innovation platform, the management of colleges and universities must increase the investment in the platform construction, make full use of the resources inside and outside the school, build a "maker space" capable of cultivating college students' entrepreneurship and innovation abilities, and include college students' entrepreneurship and innovation training projects in the "maker space" in the form of teams (Li, 2019). At the same time, the infrastructure of the maker space must be strengthened, and the interest of modern college students should be increased through the use of efficient experimental equipment, such as robots and drones, to attract students to participate in entrepreneurship and innovation practice.

Through the intelligent teaching platform, it can better help college students learn ideology education, and it is also conducive to teachers to better convey the knowledge of ideology education. The teaching materials of ideology courses have the characteristics of serious political position, strict logic, and highly concise political thought (Luo & Xie, 2019). Teachers with traditional ideas often take the teaching materials as the propaganda blueprint, cling to and gnaw on the teaching materials, and preach according to the textbooks. The class often comes across as serious and boring. In this teaching atmosphere, higher vocational students, especially those in science and engineering, find it difficult to understand highly abstract political theory knowledge. Even if ideology teachers change their teaching ideas, in the process of giving full play to their subjective initiative to make abstract theoretical knowledge close to students, close to life, and close to reality, it is difficult to realize the seamless transformation of the textbook system into the teaching system due to the limitations of their own ideas, theoretical literacy, teaching skills, and other elements. The relationship between "Double Creation" education and ideology education is shown in Figure 2.

There is a symbiotic and interactive relationship between them. College students' entrepreneurial awareness and entrepreneurial concept are not innate. These need to be taught to college students with the help of reasoning and guidance of ideology education, so that students can understand that "Double Creation" education is the need for the development of innovative countries and the internal demand for improving their own ability and self-development. In terms of the expansion of methods, "Double Creation" education is a sublation of the traditional ideology education model. It criticizes the traditional education, which only pays attention to teachers' teaching, does not pay attention to students' learning, pays attention to knowledge transmission, and has less elements of practical care. While the modern method advocates the educational concept of freedom, democracy, and fairness, emphasizes the interaction between teachers and students, and enhances the attraction of the classroom and the attention of students. The content of ideological and political education in college entrepreneurship education should be targeted. The first key to infiltrate ideological and political education in college entrepreneurship education is to integrate, collect, and select targeted ideological and political education content. In order to improve the educational effect of college students' ideological and political education, it is necessary to find the "entry point" of the educational subject, and then implement the humanistic ideological and political education method.

We should innovate the teaching theory of ideology education in universities. How can the teaching concept be innovated? First of all, as teachers, we should change the mentality of belittling ideological and political courses and fully recognize the important role of ideological and political courses in the process of cultivating innovative talents. Secondly, teachers should also innovate the old ideological and political teaching concepts, so that the spirit of innovation and entrepreneurship can be implemented in the ideological and political courses and make the ideological and political courses conform to the trend of the times. Teaching theory is the basic condition of educational reform and innovation and the necessary path of ideology classroom

Figure 2. The relationship between entrepreneurship education and ideological education



education. In the process of trying to reform ideology education, ideology teachers in universities should correctly recognize the necessity of all media, effectively avoid the adverse effects of all media education, and give full play to the positive role of all media in ideology education. The innovation of teaching theory is in line with the development trend of all media, and it is also an important content of the current ideology education reform and innovation. Therefore, in the innovation of teaching theory, we should understand the innovation and development methods of ideology teaching theory, integrate all media technology with teaching theory, analyze the problems of reform and innovation in the learning and education of teaching theory, and try to use all media technology. Ideology teachers in universities should be aware of the current situation of teaching theory, adopt an all media theoretical system with contemporary significance, and analyze and study the theoretical innovation measures of ideology education reform. The life and study of college students are affected by the multiple influences of the all-media era. Teachers should understand and master the degree and scope of the influence of all media on students, as well as the ways and paths of influence, and adopt targeted means of teaching theory innovation to realize the teaching theory innovation of ideology education. We should innovate the teaching content of ideology education in universities. The innovation of teaching content is not only the inevitable choice in the all media era, but also the core and focus of educational reform and innovation.

Clustering Algorithm for Intelligent Teaching of Ideological and Political Education in Universities

This requires the ideology education of college students to break through the pattern of "one thousand people have one side" and "the same pattern." It changes from political discourse and official discourse to students' discourse and life discourse, saying what works and what is wrong, so that the long-term goal of ideology education can be combined with the realistic goal, and the vividness and vitality of ideology education can be continuously improved. In the refined model, the boundary class represents various interactions between the internal working mode of the system and its surrounding environment, including interaction with users through the graphical user interface, interaction with other participants, and communication with devices. One of the advantages of using boundary classes is that they can isolate and shield the rest of the system from the external environment.

This section involves different clustering algorithms and compares them. The comparison items include the types of algorithms, the complexity of time and space, and the types of data space, as shown in Table 1.

The goal of cluster analysis is to collect data for classification on the basis of similarity. Clustering comes from many fields, including mathematics, computer science, statistics, biology, and economics. In different application fields, many clustering techniques have been developed. These techniques are used to describe data, measure the similarity between different data sources, and classify data sources into different clusters. The concept of cluster analysis inspects the similarity between individuals or data objects. Generally, the cluster analysis process does not calculate the similarity between two samples, but uses the distance of the feature space as a metric to calculate the dissimilarity between the two samples. The similarity measure is reflexive:

$$\forall x^{'}, x \quad \subset X \qquad \forall x^{'}, x \in X \tag{1}$$

In general, the measure of similarity of clustering algorithms can be normalized as:

$$0 \le s\left(x, x^{'}\right) \le 1 \quad \forall x^{'}, x \in X \tag{2}$$

However, a measure of dissimilarity rather than similarity is usually used as a criterion. The measure of dissimilarity is expressed as:

Table 1. Comparison of clustering algorithms

Algorithm	Type	Space complexity	Time complexity	Types of clusters found
Single connection	Hierarchical	$O\left(n^2\right)$	$O\left(kn^2\right)$	Convex or spherical
Fully connected	Hierarchical	$O\left(n^2\right)$	$O\left(kn^2\right)$	Convex or spherical
Average connection	Hierarchical	$O\left(n^2\right)$	$O\left(kn^2\right)$	Convex or spherical
CURE	Mixed	$O\left(n\right)$	$O\left(n^2\right)$	Convex or spherical

$$d\left(x^{'},x\right),\forall x^{'},x\in X \tag{3}$$

Generally, the variables we discuss describing objects are continuous intervals, usually called dissimilarity distance. The commonly used distance definitions are as follows:

1. Manhattan Distance:

$$d=\left(i,j\right)=\left|x_{i1}-x_{j1}\right|+\left|x_{i2}-x_{j2}\right|+\cdots+\left|x_{im}-x_{jm}\right| \tag{4}$$

2. Euclidean Distance:

$$d=\left(i,j\right)=\sqrt{\left|x_{i1}-x_{j1}\right|^{2}+\left|x_{i2}-x_{j2}\right|^{2}+\cdots+\left|x_{im}-x_{jm}\right|^{2}} \tag{5}$$

3. Minkowski Distance

$$d=\left(i,j\right)=\left(\left|x_{i1}-x_{i1}\right|^{q}+\left|x_{i2}-x_{j2}\right|^{q}+\cdots+\left|x_{im}-x_{jm}\right|^{q}\right)^{1/q} \tag{6}$$

The mean value of a given cluster is defined as:

$$M_{i}=\frac{1}{m}\sum_{j=1}^{m}t_{ij} \tag{7}$$

The cohesion formula is:

$$cohesion\left(C_{i}\right)=\sum_{x\in C_{i}}pro\left(x,ci\right) \tag{8}$$

The cohesion of clusters determines how closely the objects in clusters are related, and the separation of clusters determines how a cluster is different from other clusters. For prototype-based clusters, the cohesion of the cluster can be defined as the sum of the proximity of the prototype (centroid or center) of the cluster. The separation degree of clusters can be defined as the proximity of prototypes (centroids or centers) of two clusters. The resolution is as follows:

$$separation\left(c_{i},c_{j}\right)=pro\left(c_{i},c_{j}\right) \tag{9}$$

$$separation\left(c_{i}\right)=pro\left(c_{i},c_{j}\right) \tag{10}$$

Single valued decomposition is a technique for decomposing a matrix into three matrices. The inner product of the orthogonal matrix is de-normalized to obtain the actual evaluation value, as follows:

$$pre_{u,t} = \bar{v} + TS^{1/2}\left(v\right) \cdot S^{1/2} D^{'}\left(t\right) \tag{11}$$

The key part is to calculate the similarity between different items. Compared with the method of vector space model, the conditional probability method has greater flexibility and practical significance. Similarity between measurement items:

$$S\left(u / k\right) = \frac{Freq\left(uk\right)}{Freq\left(k\right)} \tag{12}$$

Each group formed through the clustering process is called a class given data set:

$$V\left\{vi \middle| i = 1,2,\cdots,n\right\} \tag{13}$$

The data set is divided into multiple groups according to the similarity between data objects, and the following requirements are met:

$$U_{i=1}^{k} \quad c_i = V \tag{14}$$

Data matrix, this data structure is in the form of a relational table:

$$\begin{bmatrix} x_{11} & \cdots x_{1f} & \cdots x_{1p} \\ \vdots & \vdots \quad \vdots & \vdots \ \vdots \\ x_{i1} & \cdots x_{if} & \cdots x_{ip} \\ \vdots & \vdots \quad \vdots & \vdots \ \vdots \\ x_{n1} & \cdots x_{nf} & \cdots x_{np} \end{bmatrix} \tag{15}$$

For the learning resource module, teachers and administrators can upload courseware and other learning resources, and students can download them. Administrators and teachers can upload corresponding teaching resources and courseware to the server in the management background.

RESULTS AND ANALYSIS

Analysis of Experimental Results

Before testing the intelligent system of ideology education in universities, this paper adopted the method of investigation and analysis in the process of research, and conducted a survey and analysis on 500 students from three universities in Jiangsu Province through a questionnaire. This questionnaire mainly surveyed 500 students from Yangzhou University, Nanjing Normal University, and Nanjing Forestry University. A total of 500 questionnaires were distributed, and 481 questionnaires were collected, with a response rate of 96.2%. The survey targets engineering, agriculture, literature, business, management, economics, philosophy, etc. Among them, there are 150 valid questionnaires for engineering majors, 100 valid questionnaires for agriculture majors, 80 valid questionnaires for literature majors, 80 valid questionnaires for business majors, 60 valid questionnaires for economics majors, and 11 valid

questionnaires for philosophy majors. There are 265 valid questionnaires for women and 216 valid questionnaires for men. The results consist of 140 students in their freshman year, 180 students in their sophomore year, 100 students in their junior year, and 80 students in their senior year. Among them, the current situation of "Double Creation" education in universities is shown in Figure 3.

The pre-test results of this experiment are based on the scores of all students' ideology education competitions at the beginning of freshman year in Yangzhou University. The objective was to test whether the experimental group and the comparison group were at the same level before using intelligent teaching of ideology education in universities. The statistical results of the experimental group and the comparison group are shown in Table 2.

Statistical analysis of post-test results is shown in Table 3.

Figure 3. The current situation of "double creation" education in universities

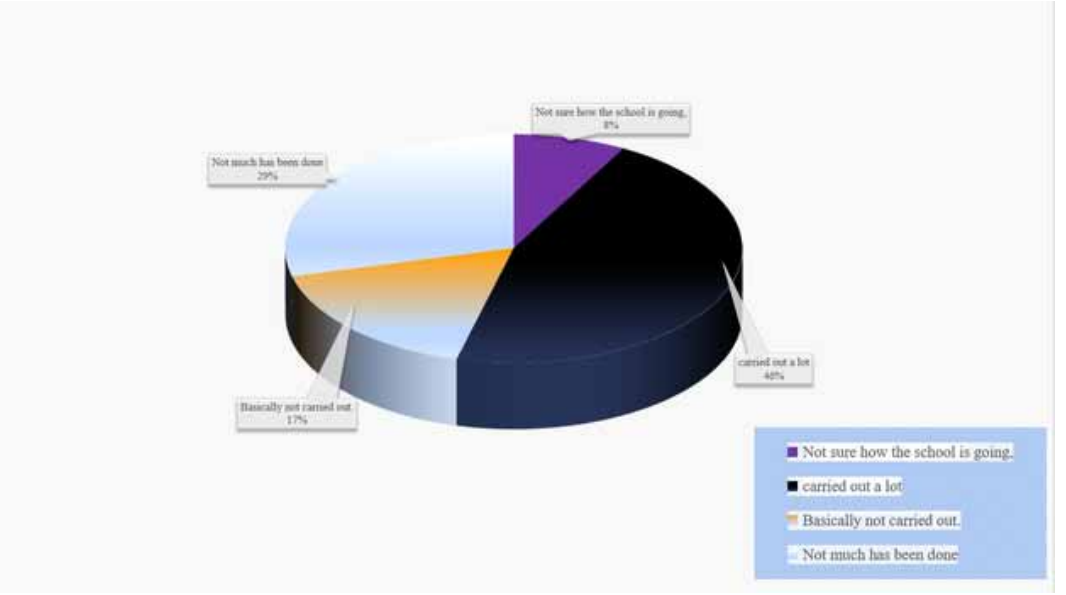


Table 2. Statistical table of pre-test results

Achievement	Total number of people	
	Experimental group	Control group
60以下	6(6.3%)	5(5.1%)
60-70	9(9.4%)	11(11.2%)
70-80	45(46.9%)	39(39.8%)
80-99	36(37.5%)	45(46%)
100	0,0	1(1.0%

Table 3. Statistical analysis table of post-test results

Group	Sample size	Average score	Standard deviation
Experimental group	49	79.784	69.0835
Contrast group	48	85.642	57.4714

In order to strengthen the understanding of college students' ideology education as a whole, as well as the current situation of "Double Creation" education among college students, we must further study the effectiveness of the intelligent teaching system of ideology education in universities under the background of ""Double Creation"" and further analyze the test paper results of different algorithms. The changes of objective function values and evolutionary algebra are shown in Figure 4.

In order to further study the experimental group students' use effect, rules are generated by frequent item sets, and then some association rules are generated. The minimum confidence is 0.5 and the minimum support is 0.01. As shown in Figure 5.

Figure 4. Changes of objective function value and evolutionary algebra

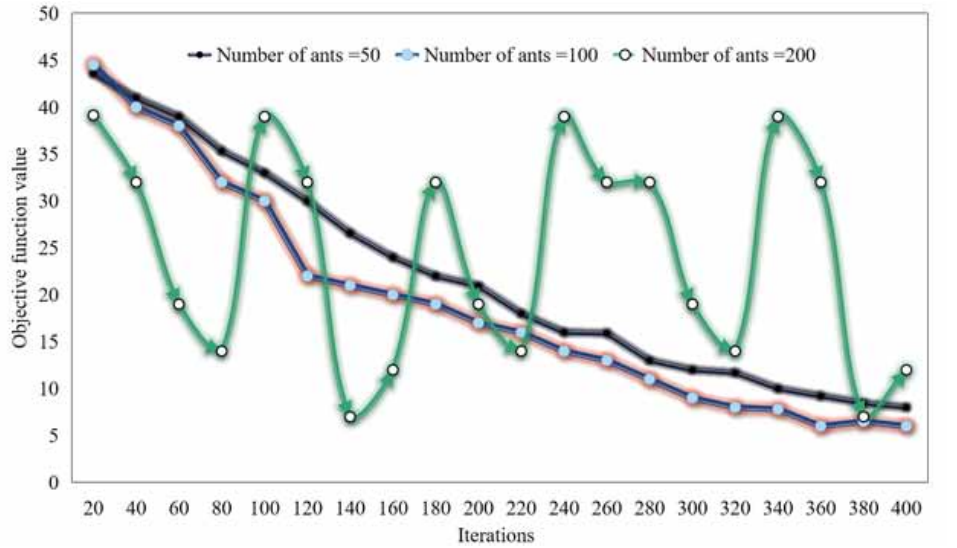
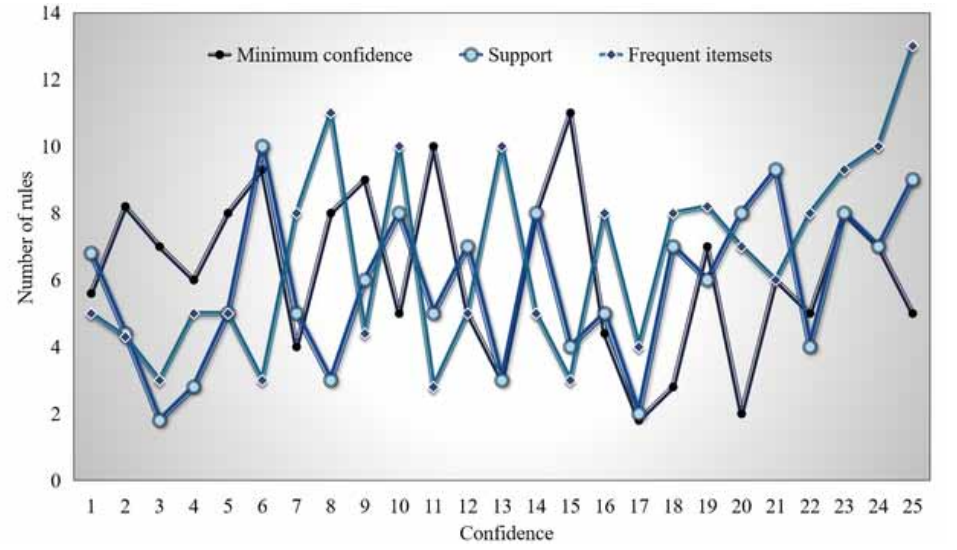


Figure 5. Correspondence between confidence and rule number



The selection of minimum confidence directly affects the number of generated rules. In other words, with a certain number of item sets, the higher the minimum confidence, the fewer rules will be generated. This kind of high probability and logical reasoning can recommend the next page that everyone pays attention to visiting students, guide them to browse more information, provide convenience for students, and improve the good reputation of the system. According to the number of users who lock frequent access, the benchmark space size of different MD training sets is compared, as shown in the following figure.

It can be seen from the figure that the benchmark space of frequent item sets is the largest, which can accommodate more sample sets, help improve the stability of the system, and obviously improve the convergence rate of model training and make the sample training effect better. Figure 7 shows the stability comparison results between the traditional teaching system and the intelligent system of ideology teaching for college students in this paper.

Figure 6. Comparison of reference space size under different MD values

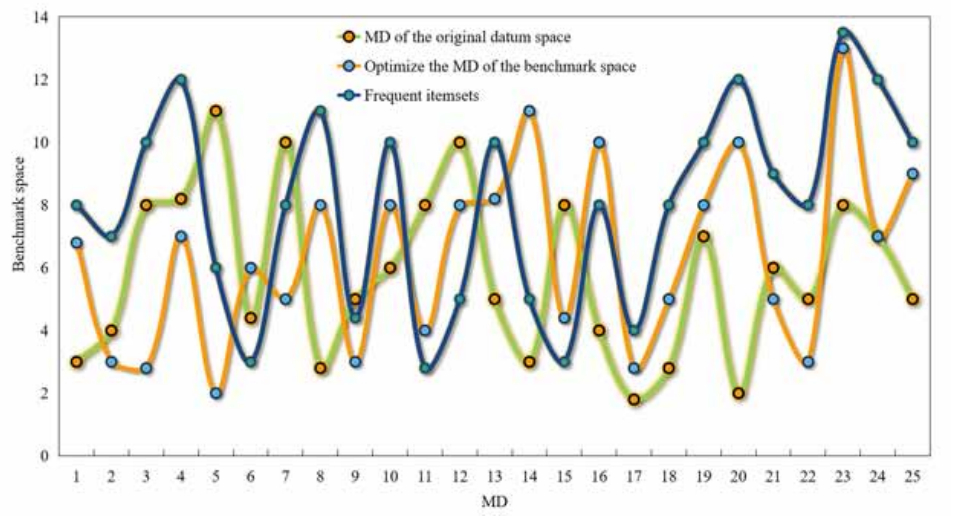
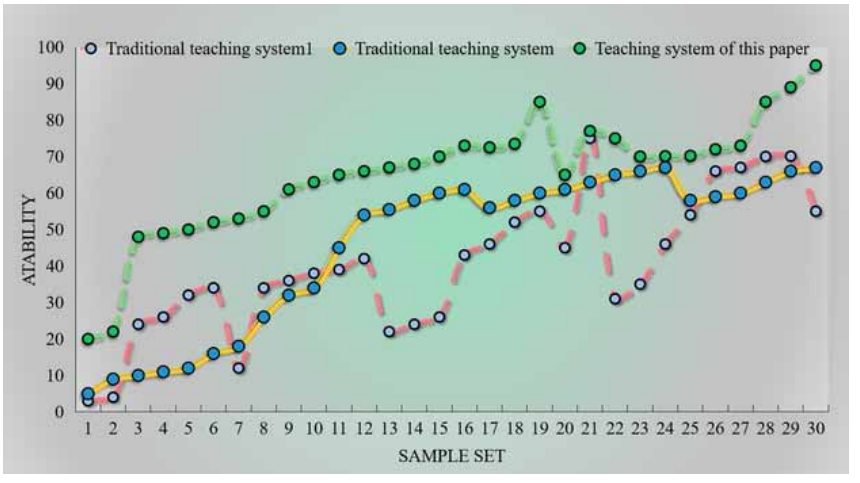


Figure 7. Comparison of stability of intelligent system for ideology teaching of college students



In this paper, the feedback information of teachers and students is designed. The results show that the designed intelligent teaching system provides abundant resources and meets the diverse needs of students. At the same time, the learning quality and average learning time of students are improved by 23% and 12%, respectively. The experimental results show that the stability of the system reaches 95.2%, and the learning efficiency of students is improved by 11.5%. Students can design teaching courses according to teachers' teaching characteristics, which enhances students' initiative. The ideology teaching system based on cluster analysis improves the traditional ideology teaching method by using computer technology, and the system users can stay away from the shackles of the traditional teaching mode, thus greatly improving the efficiency of teaching and learning of ideology courses.

The learning guidance system is an appropriate way to guide the personal transmission and learning activities to promote effective learning to the maximum extent. The further development of these properties will make the function of an intelligent learning system more perfect and effective.

Analysis of Practical Applications

This article aims to conduct an in-depth analysis and exploration of the ideological and political education model in universities under the background of "double innovation," with a focus on the application of intelligent teaching methods. This study adopts a teaching system for ideological and political courses based on cluster analysis. This system utilizes computer technology to improve traditional teaching methods for ideological and political courses, enabling system users to break free from the constraints of traditional teaching modes. Through cluster analysis, the system will provide personalized learning support and guidance to students based on their personalized needs and learning styles, in order to improve learning outcomes. However, this study also has some limitations.

(1) Technical limitations: Intelligent teaching methods rely on advanced technological support, such as artificial intelligence, machine learning, and big data analysis. However, these technologies are still in a stage of continuous development and improvement, with some technical limitations and shortcomings. For example, dealing with complex natural language, understanding semantics and emotions, and other aspects still face challenges, which may make it difficult for intelligent teaching systems to effectively interact and personalize teaching with students. In addition, there may be performance bottlenecks and insufficient accuracy when processing large-scale data. Due to the need for intelligent teaching methods to be built on advanced computer technology, there is a high demand for computer technology proficiency.
(2) Data quality and reliability: Intelligent teaching methods require a large amount of teaching data to train models and algorithms, which may face issues of data quality and reliability in practical applications. The data in the field of education is often complex, diverse, and subjective, including student academic performance, learning behavior, interaction records, etc. Therefore, ensuring the accuracy, completeness, and representativeness of data is a challenge.
(3) The limitations of personalized teaching: Intelligent teaching methods aim to provide personalized learning support and guidance, but the implementation of personalized teaching may be limited. For example, individual students may have difficulty accurately grasping factors, such as their learning style, interests, and abilities, leading to unsatisfactory results in personalized teaching. In addition, intelligent teaching methods may not fully meet the needs of students for humanistic care and emotional communication, which is an advantage of traditional teaching models.
(4) Changes in teacher-student interaction and teacher roles: Intelligent teaching methods have to some extent changed the way teachers interact and the role of teachers in traditional teaching models. Although autonomous learning and evaluation can be achieved through intelligent teaching systems, face-to-face interaction and communication with teachers still have significant importance. In addition, the role of teachers in intelligent teaching environments also needs to be redefined and adjusted, shifting from being mere knowledge transmitters to guides of learning and academic guidance.

(5) Data privacy protection and personal information security: The ideological and political education teaching system based on cluster analysis needs to obtain personal information, such as personalized needs and learning styles of students, which may lead to the risk of data privacy leakage. In addition, due to the involvement of sensitive personal information, the security of the system is also an important issue that requires strengthened research and corresponding data protection measures to be taken.

CONCLUSION

The proposal of the concept of "mass entrepreneurship and innovation" has brought new connotations to the ideological education of college students and enriched their discussion perspectives. Online teaching, as an auxiliary means of traditional teaching, has played an important role in ideological and political education in universities and has gradually become a popular education model recognized by the public. This study mainly focuses on the exploration of intelligent teaching methods for ideological and political education in universities under the background of "mass entrepreneurship and innovation." Through experimental research, the authors have come to the following conclusion: the stability of the intelligent teaching system has reached a level of 95.2%, and the learning efficiency of students has improved by 11.5%. This indicates that intelligent teaching methods have good application prospects and promotion value in ideological and political education in universities. In the intelligent teaching system, we utilize advanced technological means, combined with teaching content and student needs, to provide personalized learning support and guidance. By integrating intelligent teaching resources and designing personalized learning paths, we can better meet the learning needs of students and improve their learning outcomes and grades. At the same time, intelligent teaching can also cultivate students' innovative thinking, teamwork ability, and practical ability, laying a solid foundation for their future entrepreneurship and innovation. However, intelligent teaching methods still face some challenges, such as data privacy protection, technology application promotion, and so on. Future research needs to further explore these issues and continuously improve intelligent teaching systems to better adapt to the demands of mass entrepreneurship and innovation, and make greater contributions to cultivating high-quality talents with innovative and entrepreneurial abilities. At the same time, the government, educational institutions, and enterprises should also strengthen cooperation to jointly promote the development of intelligent education and make positive contributions to the comprehensive development of students and social progress.

DATA AVAILABILITY

The figures and tables used to support the findings of this study are included in the article.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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