

Strategies for Optimizing the Informatization Management Mechanism of Ideological and Political Education in Colleges and Universities in the Age of Artificial Intelligence

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Abstract: Campus informatization has been constantly improved. The traditional education system can no longer meet the requirements of modern society. After the country introduced the policy of population birth, a large part of the students in the campus are only children. As the only child has been favored by the family since childhood, a fixed cognitive style has been formed in the way of thinking. In view of this kind of phenomenon, corresponding information platform for this education course has been established to facilitate teachers and parents to participate in the learning of the education curriculum. It not only eliminates the boring offline classroom, but also enables parents to keep abreast of the learning situation in time, and also participate in the learning of the curriculum with students. After establishing the education information platform, the information data of students, teachers and parents were analyzed. The highest accuracy in logic intelligence has reached 35%. The accuracy of language intelligence has been up to 20%, with high accuracy. It can quickly adapt to different learning environments and quickly analyze language logic.

Keywords: College Education, Intelligent Education, Fuzzy Evaluation Method, Education Information Platform

1. Introduction

Informatization of education curriculum shows its importance in the field of education. In the traditional education work, each university adopts a unified teaching mode for different living environments, different educational experiences and different learning abilities. However, because each student's age, personal quality education, growth character and personal cognition are different, leading to a great difference in the way of thinking of students. Artificial intelligence, educational work should also be adjusted and changed accordingly. Many schools have made different efforts in the basic construction of campus informatization. How to use AI technology to provide better services for education and ensure that can be carried out smoothly among students has become one of the research topics of universities.

The informatization of education has played an increasingly important role in work education. Luo P proposed that schools should combine with virtual platforms to innovate the management mode and teaching content and to promote students' learning habits and learning methods, which created a good learning environment for students [1]. Xia Y proposed that the information model and information technology could be integrated into the education management, so that the technology could find valuable data in the education management and facilitate the evaluation in the teaching management process [2]. Zhu L proposed that students were trained to be a qualified socialist successor, while providing political security and a strong spiritual force for the country. Moodle (abbreviation of Modular Object Oriented Dynamic Learning Environment, which means modular object-oriented dynamic learning environment) technology was used to design the education platform [3]. Sun X proposed to build an education management system based on information technology, and identified the identity of students through the education management system, so as to play the role of classroom supervision [4]. Han W proposed to use the characteristics of information technology to improve IPE (abbreviation of International Position Evaluation, an international position evaluation system) and the

efficiency of managing students, and analyzed the current management situation of college students [5]. Dong W proposed education by using mathematical models. He analyzed the positive and negative effects universities, and built platform according to the positive and negative effects [6]. Yinxiang Z proposed to combine social public opinion with education courses, which was beneficial to promote students' behavior development and effectively education [7]. Chen T proposed that the way of thinking and behavior of students was widely affected by big data. The education had put forward the reform requirement of "sense of the times", which made them combine to achieve two-way transformation [8]. However, with the poor effectiveness of information transmission, an independent teaching environment was created to break through the theoretical constraints.

The network information platform is widely used, which is characterized by flexibility and freedom to achieve real-time information sharing. Du Y proposed that a platform should be established by using WWW technology (full name: World Wide Web, short for global wide area network) to achieve interactive teaching [9]. Huang X proposed to use the combination of teaching courses and problem to strengthen education, so that relevant managers could understand the relevant information of the problem [10]. According to the management form of campus education, Wang Q combined with the characteristics of clustering algorithm to make full use of teaching information and optimize the teaching mode of school administration education [11]. Zhao J proposed that the education management system based on data mining technology could analyze large amount information, thus providing an important development direction for [12]. On the whole, AI technology has developed maturely in other fields, but has not been deeply integrated with education. It is very important to study the future prospects of education.

On the whole, this paper integrated curriculum on the basis of artificial intelligence technology. The relevant information platform has been established and has been deeply studied. After experimental detection, the eight types of accuracy in the cognitive field of students in the traditional education information platform are 13%, 24%, 3.5%, 0%, 4.5%, 10%, 3% and 4% respectively. The eight types of accuracy in the cognitive field information platform in this paper are 17%, 31%, 4.5%, 0%, 8%, 12%, 5% and 7% respectively. In the field of teachers' cognition, the eight types of precision of the traditional are respectively 11%, 22%, 3.5%, 0%, 5%, 10%, 3% and 5%. The eight types of precision of this ideological and political education information platform are 20%, 35%, 4.6%, 0%, 9%, 14%, 4% and 8% respectively. In the field of parents' cognition, the eight types of precision are 13%, 24%, 4%, 0%, 5%, 8%, 4% and 6% respectively. The eight types of precision of this education information platform are 17%, 32%, 3.8%, 0%, 7%, 10%, 4% and 7% respectively. This shows education information platform in this paper has strong feasibility.

2. Information Management Mechanism of Ideological and Political Education in Colleges and Universities

2.1 Definition of Ideological and Political Education

Ideological and political education is the abbreviation of ideological and political education. It is also a philosophy and social science combining life practice and social theory. The practice is the source of power in the theory. Conversely, the theory of education guides the practice.

2.2 Concept of Education Management

Management is a universal social practice in human social activities. With the continuous increase of people's management practical experience, people have also had a deep impression on the concept of management. There are some common characteristics between ideological and political education management and general management. Because of unique characteristics, there are differences in connotation and content between the two. Educational management exists as a theoretical form, but also has a special nature of social practice. It is the essence extraction and content summarization in the process of educational work [13].

2.3 Functions of Education Management

(1) Boot function

The fundamental purpose is to improve students' ideology, morality, politics and quality. Organized implementation and objective evaluation ensure the realization of the fundamental purpose, showing a

guiding nature. In the early stage, when making plans, it is necessary to make reasonable arrangements for the contents of the courses that students learn, so that students can form a correct recognition of political thinking. The ideological nature contained in the content cognitive nature learning needs to be mutually infiltrated. An attractive learning form is adopted to improve the educational effect, so that students can form a high degree of unity in the social trend of thought to distinguish right from wrong, maintain a correct position and always maintain the overall value orientation.

(2) Normative functions

Some people believe that the so-called institutionalized education method is to restrict the way of thinking and behavior of people to a certain extent, so as to guide the development towards standardization. Influenced by many factors, the ideas of teachers and students are also impacted. Therefore, student groups are guided scientifically with the help of institutionalized management, so that student groups can form correct judgment values.

(3) Educational function

Colleges and universities advocate that ideological values should be integrated into the whole educational work, so as to establish the fundamental purpose of education and the effective mechanism of scientific system. Management and education is a link in the education work. Through the different ways of teaching management and administrative management, and then using the corresponding policies to guide, the thought and behavior of student groups are standardized. The self-management ability of the student group is cultivated, which makes the university form a situation of ideological and political education management with standardized quality management.

(4) Consolidation functions

Management is the prerequisite for the smooth development of education. To ensure that this work can have a strong effect, all the resources must be integrated. The advantages of teachers' teams and school workers are complemented. All forces of the family and society for integration are gathered, which presents a phenomenon of comprehensive education.

2.4 Challenges Faced by Education Management

(1) It is difficult to develop educational management resources

Due to the virtual nature of the network platform, the management is difficult to be highly integrated with information technology. It is too difficult to develop educational management resources. Information technology has brought people into the network virtual platform from the real space. All management elements in education can communicate and interact in the virtual platform. Due to the strong information dissemination ability of information technology, the management information of ideological and political education is false. People cannot obtain correct and valuable knowledge from this information, and the student group has the greatest impact. Due to low integration of management and technology, it is easy to hinder the smooth flow equipment resources, thus increasing the difficulty to develop and use ideological and political education management resources.

(2) The service ability of ideological and political education management in colleges and universities is lacking

The behavior norms of student groups are realized by the compulsory constraints of the school system and the moral constraints of students themselves, which is the common result of the external environment and internal constraints. However, the unity between the two has been broken by the network virtual platform. The compulsion of the system is weakened by the imperfect rules of the Internet, strong constraints on both sides education management. However, the current information technology fails to achieve effective monitoring of the network environment, which makes the student group unable to get effective constraints when they react to bad ideas. At the same time, there are many potential security risks in the network virtual platform, and the thinking and behavior of student groups are still in an immature and stable state. Their discrimination is biased, which makes the management work need to ensure the security virtual platform.

(3) The dominant position of management needs to be strengthened

In the traditional management process, managers have advantages in information and experience. Managers are not only initiators of information, but also implementers of information, as well as masters and imparters. Under the influence of the network virtual platform, both the manager and the

managed can share relevant information together. In the network virtual platform, equality has become the main demand of the Internet. At present, most of the education and management workers have weak acceptance of the Internet and poor network technology operation ability. This is also one of the reasons why the management of ideological and political education in colleges and universities is restricted by the development of network.

(4) Lack of integration of the network environment of management

In the process of education management, refined management is one of the important ways to improve. Because management is relatively rough and lacks integrity, the coordination between the network virtual platform and the education management is not high. In terms of the internal management, the internal management lacks reasonable planning and does not present a very sophisticated network state. Secondly, the external situation of education management is not well connected as a whole. The core management is still implemented. The role management of schools is overemphasized. However, the educational functions of society, family and network platforms are ignored, resulting in the disconnection between schools and many aspects, and lack of strategic guidance in education management. This makes the education have not been widely applied. It lacks a new form of management.

2.5 Overview Based on AI Technology

(1) Machine learning

Machine learning refers to how computers mine valuable information from a large number of data to achieve clustering, prediction, visualization and other related functions. After another breakthrough in artificial intelligence technology, the computational model with mathematical basis integrates machine learning methods in various fields and gradually becomes the mainstream in the information field. According to different machine learning methods, they are divided into the following categories, as shown in Table 1.

Table 1: Classification table for machine learning

Methods of classification	name	definition	apply
Learning mode	Supervised learning	Leverage a limited, labeled training dataset to model new data through a learning method that labels new data	Natural language processing, information retrieval, handwriting recognition
	Unsupervised learning	Take advantage of unlabeled, limited data to describe structures hidden in unlabeled data	Data mining, image processing, etc
	Reinforcement learning	Intelligent systems learn from the environment to the mapping of behaviors, relying on their own experiences	Unmanned driving, Go, etc
Learning methods	Traditional machine learning	Starting from some training samples, try to find laws that cannot be obtained through principle analysis, and realize predictions of future data behavior or trends	Natural language processing, speech recognition, etc
	Deep learning	Learning methods for building deep structural models	Computer vision, image recognition
Other algorithms	Transfer learning	Refers to the learning of relationships obtained using data from another domain when not enough data can be obtained for model training in some fields	Sensor network-based positioning
	Active learning	The most useful unlabeled samples are queried by a certain algorithm, and the experts are labeled, and then the classified model is trained with the queried samples to improve the accuracy of the model	

There are many machine learning methods applied in the teaching field, such as regression, network analysis and classification [14]. For machine learning methods, different personnel have different views on the application goals in different teaching links, as shown in Table 2.

(2) Pattern recognition method

Pattern recognition refers to that the computer recognizes the designated things and classifies them

into similar patterns. With the vigorous development of information technology, the accuracy of pattern recognition technology has been improved. The main components of pattern recognition are shown in Figure 1.

Table 2: The goal of applying machine learning to different stakeholders

Stakeholders	Machine learning application targets
intendant	Evaluate teachers' teaching performance and improve management systems; Scientific allocation of educational resources
teacher	Teaching intervention can be carried out when learning is poor, timely modify teaching methods and find out rules
student	Advocate autonomous learning. Recommend adaptive learning methods

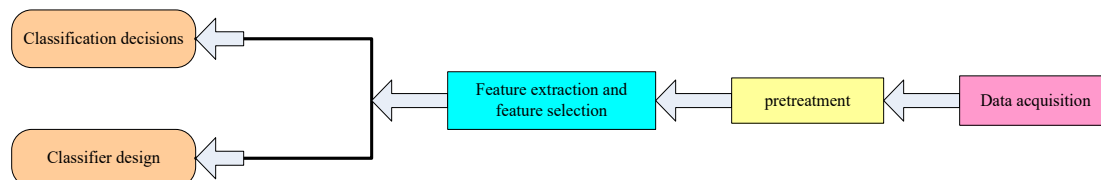


Figure 1: Process diagram of pattern recognition method

In the teaching field, the premise of corresponding learning services is to strengthen the data model, which is the result obtained by analyzing the relevant data [15].

(3) Education platform based on B/S architecture

As the mainstream server framework, B/S mode does not need to be installed, but only needs to access the browser. The architecture process of B/S mode is shown in Figure 2.

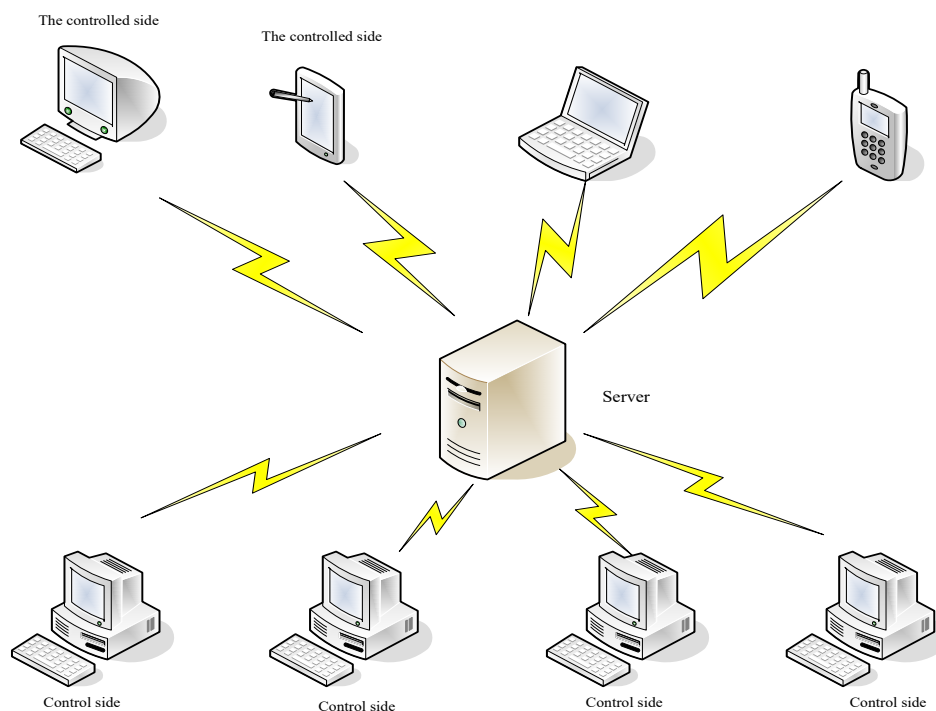


Figure 2: Schematic diagram of B/S structure

(4) Education information system based on web technology

In order to change the traditional way of education, the education information system is built by using the Internet and campus network. The information platform formed by the combination of web technology and education courses is shown in Figure 3.

A good interaction channel has been established between teachers and students, which can effectively complete the curriculum work and achieve the effect that traditional education has failed to achieve.

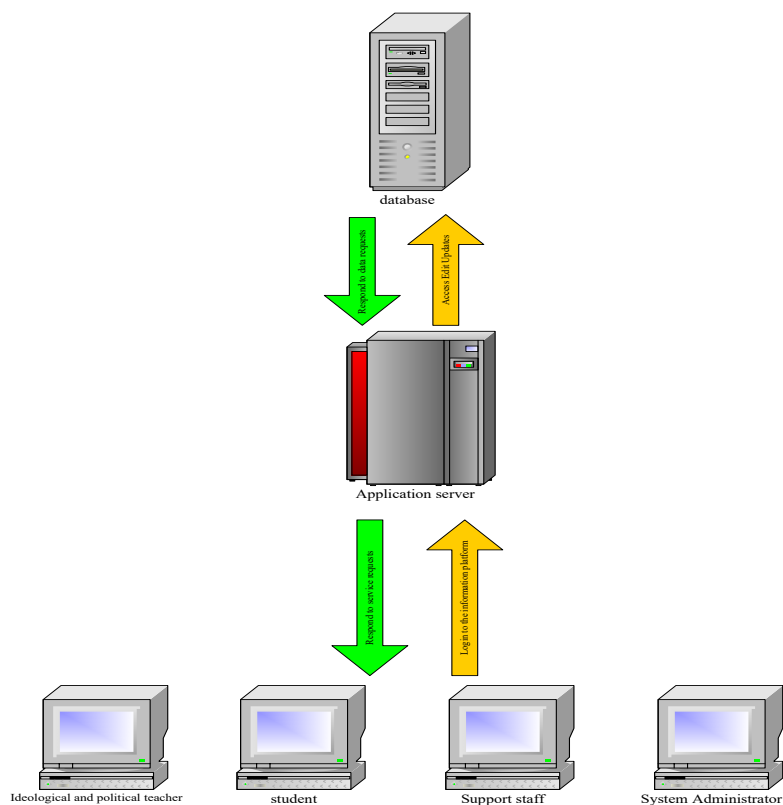


Figure 3: Education information platform based on web technology

2.6 Demand for Educational Courses



Figure 4: Demand structure chart of education information platform

Considering that education curriculum is the interaction between teachers and students, it is also one of the ways to immediately release national policies or decisions. Therefore, an educational information platform is needed to be established. On the one hand, it is to supervise students' learning. On the other hand, it is helpful for students to carry out autonomous learning, so as to establish relevant information platforms, as shown in Figure 4.

2.7 Quality of Educational Curriculum

In the teaching of educational courses, a combination of quantitative and qualitative methods is called fuzzy evaluation method.

(1) Determination of unknown factors

All uncertain factors are combined into a set number set, and the set number set is analyzed with fuzzy evaluation method, which is recorded as:

$$U = \{u_1, u_2, \dots, u_n\} \quad (1)$$

(2) Certainty of comments

In order to set corresponding standards for evaluation indicators, too detailed standards are likely to lead to slow progress in the analysis process. The division of evaluation standards is also an important part. The collection of all evaluation criteria is called the comment collection, which is recorded as:

$$V = \{v_1, v_2, \dots, v_n\} \quad (2)$$

(3) Determination of weight

The contribution of each evaluation factor to the overall is different. Therefore, it is necessary to set the relevant weight for each evaluation factor, which is recorded as:

$$A = \{a_1, a_2, \dots, a_n\} \quad (3)$$

(4) Judgment of matrix

When the i index scalar is set as judgment matrix R_i , the formula is recorded as:

$$R_i = (r_{i1}, r_{i2}, \dots, r_{in}) \quad (4)$$

The judgment matrix of each indicator quantity is recorded as:

$$R = \begin{bmatrix} r_{11} & r_{12} & \dots & r_{1n} \\ r_{21} & r_{22} & \dots & r_{2n} \\ \dots & \dots & \dots & \dots \\ r_{m1} & \dots & \dots & r_{mn} \end{bmatrix} \quad (5)$$

(5) Comprehensive discrimination

For a fuzzy quantity relation transformation from U to V , it is recorded as:

$$T_R: F(U) \rightarrow F(V) \quad (6)$$

From this transformation, the following fuzzy comprehensive judgment results can be obtained and recorded as:

$$B = A \times B \quad (7)$$

(6) Data collection

It is assumed that the number of experimental samples is S , and the base number of experimental samples is Q . The code number of experimental samples is T , then there are:

$$T_n = T_1 + \frac{(n-1)S}{Q} \quad (8)$$

(7) Data sorting

The sum of S is equal to T , which is recorded as:

$$T = s_1w_1 + s_2w_2 + \dots + s_nw_n \quad (9)$$

The average of S is equal to N , which is recorded as:

$$N = \frac{T}{n} = \frac{s_1w_1 + s_2w_2 + \dots + s_nw_n}{n} \quad (10)$$

3. Optimization of Educational Informatization Management Mechanism

To verify the practical application effect of the fuzzy evaluation method on the ideological and political education information platform, the learning evaluation of a certain student group is selected as the basic data, as shown in Table 3.

Table 3: Basic data sheet for learning quality evaluation

The field of intelligence	Personal evaluation	Teacher evaluation	Personal evaluation	Group evaluation	Parent evaluation	Teacher evaluation
Natural intelligence	0.7	0.7	0.8	0.9	0.8	0.9
Introspective intelligence	0.7	0.7	0.85	0.9	0.85	0.9
Communicative intelligence	0.7	0.79	0.65	0.63	0.68	0.75
Rhythmic intelligence	0.65	0.7	0.75	0.76	0.74	0.81
Motion intelligence	0	0	0	0	0	0
Spatial intelligence	0.51	0.53	0.73	0.81	0.72	0.83
Logical intelligence	0.65	0.72	0.84	0.83	0.76	0.84
Language intelligence	0.73	0.72	0.71	0.84	0.78	0.92

The selection factors of the overall evaluation process of students are comprehensively analyzed. Through the maximum comment of the fuzzy evaluation method, the result type of the data is judged, so as to capture important basic data.

(1) Analysis based on students' cognitive field

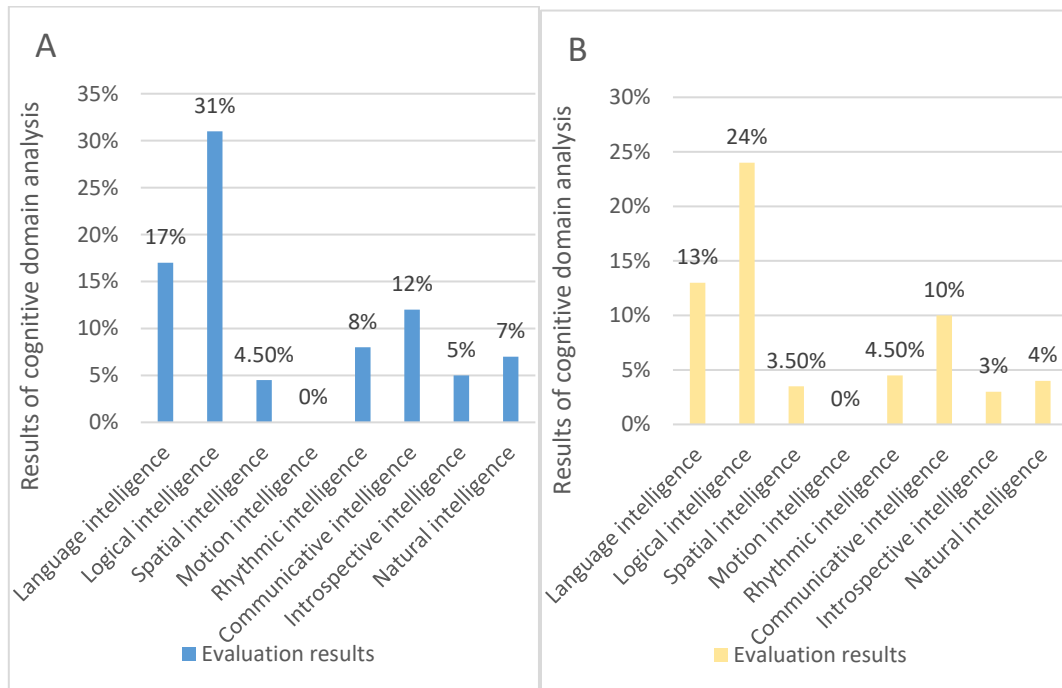


Figure 5A is the platform of this article

Figure 5B shows the traditional platform

Figure 5: Comparison of the results of students' cognitive domain analysis

The accuracy rate of language intelligence in the platform in Figure 5A is 17%, while the accuracy rate of language intelligence in the platform in Figure 5B is only 13%. In comparison, the platform in this paper is more accurate in language recognition, which also shows that the platform can recognize some more complex languages. In terms of logic intelligence, the accuracy of logic intelligence in the

platform of Figure 5A reaches 31%, while the accuracy of logic intelligence in the platform of Figure 5B reaches 24%. The logic intelligence of this platform can identify more complex statements. In combination with the above figures, the accuracy of each index in Figure 5A is better than that in Figure 5B, and the information platform in this paper has a high stability performance.

(2) Analysis based on teachers' cognitive field

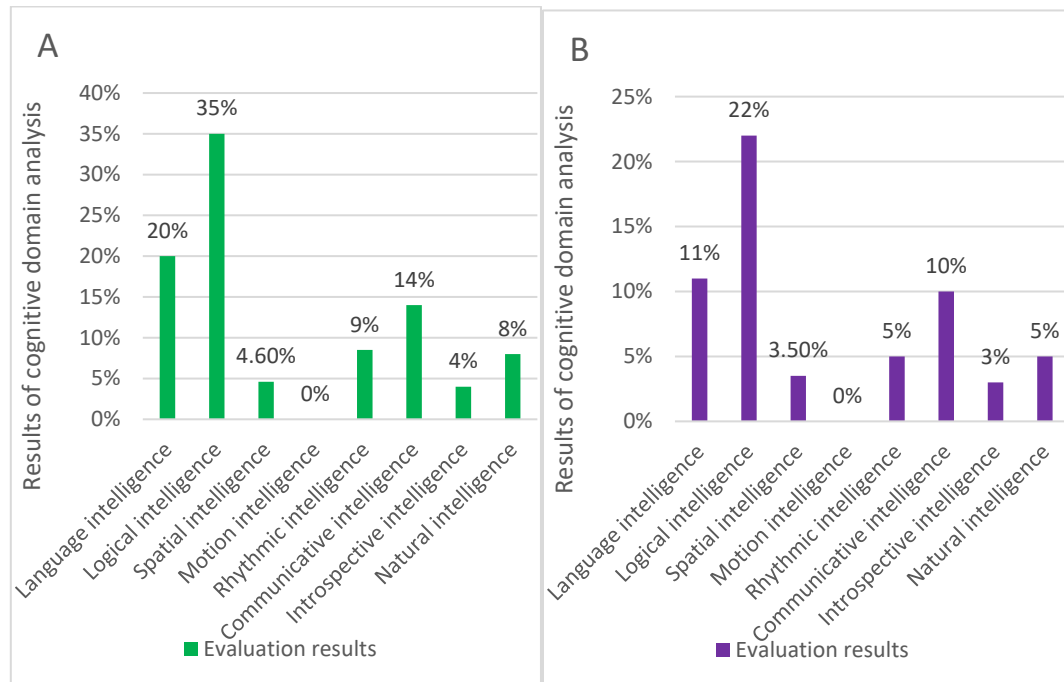


Figure 6A is the platform of this article

Figure 6B shows the traditional platform

Figure 6: Comparison of the results of the analysis of teachers' cognitive fields

In Figure 6A, the accuracy rate of this platform in terms of language intelligence reaches 20%. In Figure 6B, the accuracy rate of traditional platform in terms of language intelligence is only 11%. In comparison, the platform in this paper is more accurate in language recognition, which also shows that the platform can recognize some more complex languages. In terms of logic intelligence, the precision of the platform in this paper is 35%, while that of the traditional platform is 22%. The logic intelligence of this platform can identify more complex statements. In this paper, the accuracy of platform communication intelligence is 14%, while the accuracy of traditional platform communication intelligence is 10%. This shows that this platform has added some interactive functions and eliminated boring teaching methods.

(3) Analysis based on parental cognitive domain

The accuracy rate of the rhythm intelligence of the Figure 7A platform is 7%, rhythm intelligence of the Figure 7B platform is only 5%. Comparatively speaking, the platform in this paper is more accurate in speech recognition. At the same time, it can have a high degree of detection for specific sound. In terms of natural intelligence, the accuracy of natural intelligence of Figure 7A platform reaches 7%, while that of Figure 7B platform reaches 6%. The natural intelligence of the platform in this paper can analyze the specific, which has high accuracy in analysis.

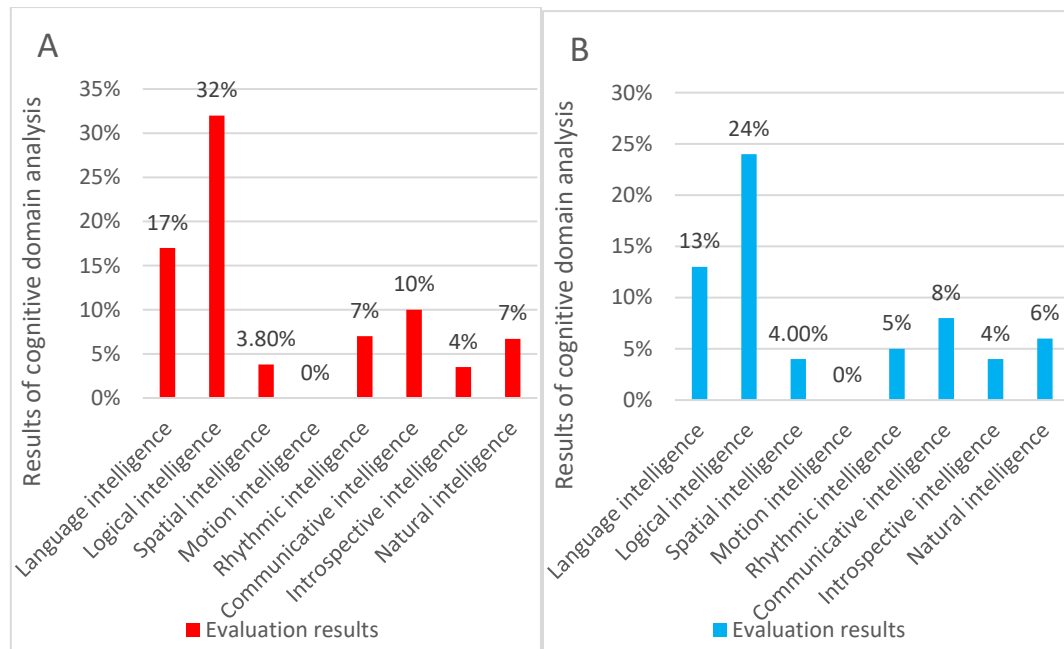


Figure 7A is the platform of this article

Figure 7B shows the traditional platform

Figure 7: Comparison of the results of the analysis of the cognitive field of parents

4. Conclusion

The campus education information platform is still in the construction stage. To improve the information platform, it is necessary to collect basic information data from student groups, teacher teams and parents, teacher teams and parents, so as to analyze the data, especially for students'. Then, through the evaluation and analysis of the fuzzy analysis method, the basic standards for the evaluation of learning quality were formulated. Students could give consideration to many courses, so that students, teachers and parents could form a trinity of subject learning. At the same time, it is also one of the ways of reform and innovation. Students can more quickly understand the policies issued by the state and meet the requirements of education. Parents can also learn about students' learning. Similarly, parents can also participate in the ideological and political education curriculum. The attention of parents to students has been increased to encourage each student to express their ideas.

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